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May Provide More Manpower for Industry

Report From Ottawa States Federal Government May Shortly Act To Supply More Labor For the Pulp and Paper Industry—President Smith of C.P.P.A. Issues Plain Statement—Other Late News.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 11, 1943—From Ottawa comes the news that the federal Government may "within a short time" take steps to ensure a fuller supply of manpower for the pulp and paper industry. It is forecast that the production of pulpwood will be raised to category "B," which would place it in the same category with industries whose manpower is protected by recent regulations of the National Selective Service.

One of those regulations provides that no person employed in industries of A or B category may be freed for another job or get a separation certificate without approval of National Selective Service.

The problem of manpower for production of pulpwood and newsprint has been under study by an interdepartmental committee and also by an international committee, Canada being represented on the latter by Morris Wilson of Montreal.

Higher Priority Would Close Some Mills

Spokesmen for the industry said today that the higher priority would mean the difference between some mills having to close for lack of supply, or remaining in operation on a product of which more than 54% has been going directly into essential war or substitute materials.

While the industry and the entire question of priority has been under immediate study of a joint committee, comprised of representatives of the Department of Labor, the Department of Munitions and Supply and the Wartime Prices and Trade Board, it is understood that the overbearing question of essentiality was determined by the Combined Production and Resources Board of which Canada is a member with Great Britain and the United States.

Reference of this and other problems in production to the Board was made in the belief that essentiality or what is most needed from Canada, could best be determined by the men of the various combined boards of the United Nations — particularly those located at Washington.

During his Ottawa visit last spring, Donald Nelson, chairman of the United States War Production Board, stated in an interview that pulpwood was the major item from Canada, with which the Board was concerned, as was coal from the United States to Canada.

In recent studies of the pulpwood position, it is understood that labor Minister Humphrey Mitchell has consistently favored the upgrading of the industry's priority.

Plain Talk by President of C. P. P. A.

The most outspoken statement yet made in public in regard to the threatened shortage of pulpwood and consequently of newsprint, and an explanation of the vital role these products play in modern war, was contained in an address delivered here before the Advertising and Sales Executive Club by L. Howard Smith, president of the Canadian Pulp and Paper Association. Referring to the fact that the pulp and paper industry in Canada faces a pulpwood shortage of between 1,250,000 and 1,750,000 cords, or 20% of its annual consumption, he said:

"If any substantial reduction is to be made in pulpwood consumed it must be at the expense of our good neighbor and best permanent customer — the United States," he said. "If any substantial reduction in newsprint shipments to the United States is made, I can foresee a good deal of odium resulting to the Canadian industry from the failure of this country to take similar steps to those adopted below the border."

"Well, you may ask," he said, "has the industry any solution for the crisis with which it is faced? The need is manpower for woods operations. Representations have been made to the Dominion Government asking that certain changes be made in National Selective Service Regulations. A request has also been made that 20,000 internees or prisoners of war be put to work to cut wood this season. We are still waiting for Government action.

Service Law Intimidates Farmers

"Farmers today are reluctant to go into the bush because of National Selective Service Regulations.

(Continued on page 14)

Federal Drive for More Pulpwood Starts

Appropriation of $1 Million Allotted to U. S. Forest Service To Promote Increased Cutting Has Been Put Into Effect — Farm Workers Now More Free To Take Jobs In Woods — Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 11, 1943—Federal promotion of increased pulpwood cutting in Wisconsin and adjoining states already has been put into effect, under the appropriation of $1,000,000 allotted the U. S. Forest Service by Congress for this purpose. A. G. Hamel, assistant regional U. S. forester attached to the office at Milwaukee, Wis., has been appointed as head of the Timber Production War Project, and will direct the work in ten middle-west states east of the Mississippi River.

Mr. Hamel will make every effort to stimulate logging, find mature timber stands and obtain permission from the owners to have them logged. He will also seek out logging companies which can work on these tracts. Cooperation of state and extension foresters and smaller agencies will be enlisted.

Marinette County, Wisconsin, which has extensive stands of county-owned forests released its first stumpage under the new drive last week. Fifteen bidders appeared and enough stumpage was sold to produce 973 cords of pulpwood. Another list will be advertised this week.

Cutting also will be permitted soon at the Highland State Forest in northern Wisconsin. C. L. Harrington, state forester, has prepared a proposal for cutting mature trees on approximately 1,800 acres within the area. Authorization was expected to follow a tour of the area Sunday, October 10, by the Wisconsin Conservation Commission and other interested officials. The commission intends to adopt a general state forest cutting policy so the work can be expedited on all state-owned lands this winter.

Farmers and farm hands have been notified by Col. John F. Mullen, Wisconsin director of selective service, that they can take jobs in the logging industries without jeopardizing their occupational classifications of 2-C and 3-C under the draft regulations. They normally devote part of their winters to wood cutting, and it is believed a general campaign among them will be a big step towards solving the manpower problem in the woods. Releases must be obtained through draft boards. Loggers have depended on their winter months as a source of labor and will utilize a large number.

The unusually dry fall season has brought a new threat to the forest areas. Numerous fires have broken out in the forests of northern Michigan, an important source of pulpwood supply. Approximately 1,000 acres have been burned over within recent days, or about 25 per cent of the entire forest fire loss for the whole season.

Arrangements are being made with the U. S. Army to rush soldiers to various areas where fires break out. Educational authorities are also being asked to release high school students when emergency forces are needed. A like situation is prevalent in Wisconsin, where emergency steps also are being taken.

Mills are turning to waste sources to make up for lack of pulp, but are finding that jobbers' stocks are exceedingly low. One Wisconsin container mill was obliged to shut down temporarily last week awaiting additional paper stock. Jobbers are advocating new paper drives and are also endeavoring to educate householders to assort the fine and coarse grades prior to delivery because of the shortage of labor in warehouses.

Attain Required Unemployment Reserves

Thirty-one per cent of the 11,750 employers covered by the Wisconsin "experience rating" unemployment compensation law now have a zero rate of assessment because they have built up the required reserves, according to reports issued by the Wisconsin Industrial Commission. Thirty-five per cent are contributing at the rate of one per cent of payroll, and only 26% are obliged to continue paying the standard rate of 2.7%. The remainder are paying slightly higher assessments because their reserves are low.

With practically no unemployment of a duration to require compensation to workers, the paper and pulp mills are largely among those with adequate reserves.

Total employer reserve balances at the beginning of this year were nearly $75,000,000. Benefits paid out during 1942 amounted to $4,031,159.

Employers were obliged to establish post-war reserves the second half of the year in anticipation of widespread unemployment, under a new legislative act. The assessments amounted to an extra one-half of one per cent, but only 1,200 employers were obliged to contribute to cover the "war risk" requirements.

Old Employee is Honored

Chris Vander Velden, who completed fifty years of service with Kimberly-Clark Corporation Sunday, October 10, was honored at a luncheon last Saturday at the clubhouse of the company's mill at Kimberly, Wis. Officials, supervisors and employees were present, and the honored guest was presented with a gift. Mr. Vander Velden has worked at many jobs in the company's mills and is now in charge of clay-sizing and alum making. He has never been absent because of accidents or illness.

Northeast Chemists Hold Meeting

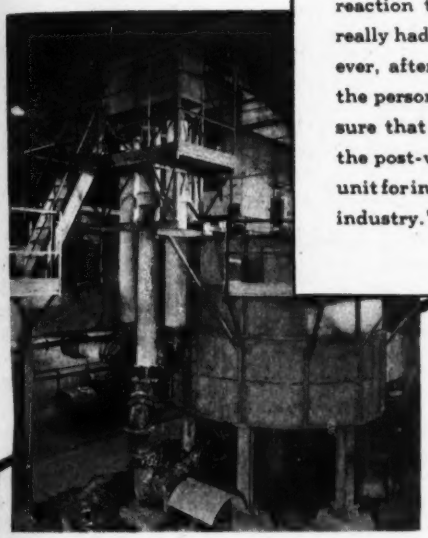
The Northeast Wisconsin section of the American Chemical Society met October 6 at Lawrence College, Appleton, Wis., to hear an address by Dr. Paul Kolachov, technical counsel for Joseph E. Seagram and Sons, Inc. His subject was "Industrial Possibilities of New Crops," dealing largely with post-war production of essential oils, quick-drying oils, drugs and species.

Mill Employees Aid Hospitalization Plan

More than 1,400 employees of the Kimberly-Clark Corporation, Neenah, Wis., are subscribers to the Blue Cross hospitalization plan, which provides care for the worker and his family in return for modest monthly payments. A new enrollment campaign has been in progress during which 400 subscribed.

Of Course... HE WAS IMPRESSED!

"Several years ago, I had the pleasure of observing the operation of your Hydrapulper at the River Raisin Paper Company in Monroe, Michigan, and my reaction to it at that time was that it really had to be seen to be believed. However, after discussing its operation with the personnel at River Raisin, I feel sure that you will be extremely busy in the post-war period, manufacturing this unit for installation throughout the paper industry." Thus wrote one observer.



So have hundreds of other mill men been impressed. So will thousands more, you included, given the opportunity to see a Dilts Hydrapulper in action. Where can you see one at work? The roster gives you the town and, where necessary, we will name the mill. You won't have to travel far. Restricted transportation due to war shouldn't seriously interfere with the trip. Remember, an ounce of demonstration is worth a ton of explanation.

PRESENT HYDRAPULPER ROSTER BY CITIES — MILL NAMES ON REQUEST

CANADA
Brantford, Ont.
Joliette, Que.
Ottawa, Ont.
Three Rivers, Que.

CONNECTICUT
Bridgeport
New Haven

ILLINOIS
Alton
Joliet
Peoria
Taylorville

INDIANA
Elkhart
Wabash

LOUISIANA
New Orleans

MASSACHUSETTS
Baldwinsville
East Pepperell
East Walpole
Fitchburg
Holyoke
Palmer

MEXICO
Coyoacan
San Rafael (20 miles from Mexico City)

MICHIGAN
Kalamazoo
Monroe

NEW JERSEY
Bogota
Camden
Clifton
Gloucester City
Milford
Paterson
Perth Amboy
Trenton

NEW YORK
Carthage
East Rochester
Fulton
Herrings
Newark
New Hartford
Syracuse
Utica

OHIO
Baltimore
Lockland
Rittman
Steubenville

PENNSYLVANIA
Manayunk (Philadelphia)

SOUTH CAROLINA
Hartsville

VIRGINIA
Covington

WASHINGTON
Bellingham
Longview

WISCONSIN
Menasha
Milwaukee
Neenah
Rhinelander
Rothschild

Dilts
MACHINE WORKS
FULTON, N. Y.
Division of The Black-Clawson Co., Hamilton, Ohio
Shartle Bros. Machine Co., Middletown, Ohio Division

DILTS HYDRAPULPERS

Container Institute Makes Trade Survey

Specialty Flexible Container Manufacturers' Institute, Formed In August, Finds More Than One-Third of Output of Specialty Bags And Envelopes Has War Use — Penn. Salt Buys Stotesbury Home.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 11, 1943—In an effort to push the war effort, twenty-seven manufacturers of specialty and hand-made bags and envelopes met on August 18 at the Waldorf Astoria Hotel in New York and unanimously voted to form a central organization known as the Specialty Flexible Container Manufacturers' Institute. With Gordon H. Friend of Thomas M. Royal and Company, Philadelphia, as Institute president, it immediately swung into action on an industry-wide survey to determine exactly the amount of war and basic civilian end-uses, types of containers for such purposes and the amounts and types of papers and films used in their production.

What the Survey Shows

In an interview with President Friend, he stated that to date the result of the survey shows that, "More than one-third of the output of the Specialty Bag and Envelope Industry has gone to war. Glassine and greaseproof papers, vegetable parchment, cellophane and countless laminations of these papers and films are efficiently filling the functions of more critical materials in many packaging cases. In many more they are doing the tough container job for war materials and supplies better than any other products could do them. Products packed go all over the world, from the Solomons to Murmansk.

"The impact of war conditions on end-uses of specialty bags and envelopes has created new problems for the industry. Old uses have been expanded. The technical skill and ingenuity of individual manufacturers have, in addition, devised scores of new packaging types to meet the critical demands of global warfare and the changed pattern of basic civilian needs.

Institute Makes Survey of End-Uses

"These new and enlarged problems led to the formation of the Specialty Flexible Container Manufacturers Institute through which practically all leading manufacturers of specialty bags and envelopes are cooperating in more efficiently adapting and developing their products to meet the needs of the armed forces and of the civilian population." And now through the joint effort of the Institute the survey of the end-uses of the industry's products are herein made known. Said Mr. Friend: "No information of this type had previously been in existence. Apart from determining that more than one-third of total output went into direct war uses, the survey returned valuable information on the functions of the remainder.

"Two-thirds of specialty bags and envelopes serving civilian purposes package basic foods. Of the rest nearly all serve an equally essential use in shipping and preserving such items as pharmaceuticals, fertilizers, surgical dressings and soaps. Information derived from this survey is now being used in furthering more intelligent adaptation of products to a total war economy."

Activities of this Specialty Flexible Container Manufacturers Institute are under the direction of an executive committee consisting of: Gordon H. Friend, Thomas M. Royal & Co., Philadelphia, chairman; Alfred Bleyer, A. Bleyer & Company, Brooklyn, N. Y.; Harold E. Hallman, Allied Paper Bag Corporation, Baltimore, Md.; E. S. Lancaster, American Paper Goods Company, Kensington, Conn.; H. W. Stevens, Benjamin C. Betner Co., Devon, Pa.; C. A. Thoms, Kennedy Car Liner and Bag Company, Shelbyville, Ind.; Arthur Snapper, Milprint Inc., Philadelphia, Pa.; I. Zucker, Oneida Paper Products Company, New York, N. Y.; and E. Rickel, Union Bag and Paper Corporation, New York.

Penn. Salt Co. Buys Mansion

Leonard T. Beale, president of the Pennsylvania Salt Manufacturing Company, announces the purchase of Whitemarsh Hall, the 150-room palace of the late E. T. Stotesbury, Chestnut Hill, Philadelphia, which will be converted into a scientific research laboratory. "The mansion will be the research center for the Salt Company's eight plants in widely separated parts of the country," Mr. Beale said; adding

"It is our intention to limit the use of this property to scientific institutional purposes solely. No manufacturing or commercial operations of any kind will be carried on in it. We plan to set up a staff of about 75 chemists and their assistants. The grounds, including the beautiful gardens, will be maintained as important features for which Whitemarsh Hall is celebrated. The company hopes to continue the building as a famous landmark while at the same time putting it to important uses for the benefit of our national welfare.

An Important Work Shop for Chemistry

Commenting on the sale, Mr. Beale said: "Surely it is a kind fate which destines the Stotesbury mansion to become a crucible from which the spirit of American industry will, through the magic of modern research methods, evolve new and wonderful discoveries—inventions which will line up with the remarkable achievements in plastics and electronics to make the future America a better place in which to live.

"Here chemistry will find one of its most important workshops. It may well stand out in the future as an important factor in the ever-increasing influence of chemistry on our daily lives."

The Pennsylvania Salt Manufacturing Company was formed in 1850 to manufacture salt and resultant products, but now also makes a wide variety of chemicals. From its plant at Delaware and Oregon Aves., Philadelphia, now used principally for making industrial acids, it has expanded to include plants at Cornwells Heights, Bucks county; Natrona, near Pittsburgh; Wyandotte, Mich.; Easton, Pa.; Tacoma, Wash.; Portland, Ore.; and Tulsa, Okla.

HAVE YOU HELPED AMERICA TODAY?

Where, really, do new products begin?

In the brain of a busy executive or worker or customer who isn't satisfied with what's available. Sometimes as a spark between two active minds at the shop after hours, at the club after lunch, or at a meeting where men of different types are drawn together by a common air. Wherever new products begin, they almost always spring into first bloom in the form of a few seemingly mysterious hieroglyphics.

Industry today is bending all its energies toward winning the war through new and better products. But after the war the ingenuity and resourcefulness inherent in all American industry, from bottom to top, will again be directed toward new products, better products, for peacetime living. Better metals, better plastics, better things made from wood and rubber and glass and ceramics, better foods and textiles. And most of them will depend, for their excellence, on *chemicals*.

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SODA ASH · CAUSTIC SODA · LIQUID CHLORINE · SODIUM BICARBONATE · SILENE (Hydrated Calcium Silicate) · CALCIUM CHLORIDE
SODA BRIQUETTES · MODIFIED SODAS · CAUSTIC ASH · PHOSFLAKE · CALCENE (Precipitated Calcium Carbonate) · CALCIUM HYPOCHLORITE

Chicago Reports Paper Supply Less Assured

Lack of Adequate Shipments of Wood Pulp To Mills Is Viewed With Serious Concern In Mid West—Demand For Many Types of Paper Heavy — Safety Congress Holds Meeting — Other News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., October 11, 1943 — Reports from local headquarters of the paper industry are not at all encouraging. Mill representatives are facing an ever growing scarcity of pulp with wonder and foreboding as to how commitments of even the most essential type are going to be filled. With mills being called upon by government order to ship their pulp to designated spots and with the scaling down process now going ahead in the converting mills, particularly the sulphites, the situation is construed as serious.

Demand continues to be very heavy in all grades with krafts and the box board industry in a very precarious spot to be in prior to what promises to be a record holiday retail sales year. Conservation programs are reported to have done little more than dent the tense demand position of the trade. Books and covers were in heavy demand with the consumer trade not obviously concerned over changes made by the Government. Similar situations prevailed in all sulphites and groundwoods with the newsprint pulp situation equally grave. Waste papers were very firm although weather was good for collections and salvage drives thus reported were said to be successful.

Safety Congress Holds Annual Meeting

The paper and Pulp Section of the National Safety Council took a most important part in the activities of safety experts and engineers which characterized the thirty-second annual National Safety Congress and Exposition held in Chicago October 5, 6 and 7. Three hotels, the Sherman, Morrison and LaSalle, were used to house the huge convention and exposition with the Hotel LaSalle being the site of the Paper and Pulp Section activities.

Meetings of this Section got under way on the afternoon of October 5 under the direction of Roland W. Harrison, general chairman of the Section and personnel manager of the Gardner-Richardson Company of Lockland, Ohio. On the first program was a review of the 1942-43 accident experience in the industry as presented by F. W. Braun, vice president of Employers Mutuals of Wausau and Chairman of the sections Statistics Committee. The accident record was considered good in view of the man power and women power and personnel problems brought on by the War effort. George J. Pecaro, plant manager of the Flintkote Company, also spoke on "Discharging Management's Responsibility for Safety."

On the following afternoon group sessions were held for Pulpwood Loggers and Paper Products Plants. At the pulpwood session W. L. Bennet, president of the Quebec Pulp and Paper Safety Association warned those present that employers should keep ahead of social reforms rather than have some forced upon them which "had been thought up by some impractical college professors or politicians who know nothing about the actual management of business. Mr. Bennet, who was introduced by J. E. Cantin, safety director of the Quebec North Shore Paper Company, made the suggestion that manufacturers promote a system of accident prevention before adopting impracticable legislation." He added that employers are facing a future of many social reforms "and some of them will be foolish and costly both to employer and employee" unless they step into the picture to work out the problem for themselves.

At the same meeting E. A. Page of the Kimberly-Clark Corporation, discussed an interesting proposed safe practice pamphlet on safety in pulpwood logging operations. The Paper Products Plant section was presided over by A. J. Basile of the Lawrence Paper Company of Lawrence, Kansas, and took virtually the entire session to discuss paper converting safety problems including how to eliminate accidents to men working around plant equipment; safe handling of raw stock rolls and finished materials; safe handling of parent roll shafts; state laws and war man-power demands; safe practices enforcement under present labor conditions and proper protective equipment for women in paper products plants.

Participating in this discussion were H. H. Aderhold, Marathon Paper Mills; Cliff E. Burton, Kimberly-Clark Corporation; B. J. McClosky, Hoberg Paper Mills; Russell F. Stephens of the Chicago Tribune and A. J. Tuccinardi of the Ohio Boxboard Co.

On the final afternoon of the session presentation of contest awards were made by J. E. Long, the Delaware & Hudson R. R. Corporation and A. Scott Dowd of Fritz Publications, Chicago. Following these presentations a discussion period was held on "What Is Your Problem," W. G. Etter of the River Raisin Paper Company led the discussion which was participated in by Ernet Augustus of the Mead Corporation; Walter A. Gleason of the Hammermill Paper Company and H. P. Huebner of the Flintkote Co.

Salesmen Discuss Current Problems

The western division of the Salesmens Association of the Paper Industry held its regular Monday meeting on October 3 at the Sherman Hotel with Burt Fisher of the Bergstrom Paper Company presiding. A round table discussion featured the meeting after Mr. Fisher had read a lot of material and forecasts assembled from Washington and New York sources indicating the increasingly critical condition of the pulp and chemical and man power markets.

Local Shippers Do Good Jobs

Chicago and Illinois shippers who have spent a lot of time cooperating with the Government in working out transportation problems, came in for some merited praise this week as a publication of the U. S. Department of Commerce commented on the "unselfish teamwork and fullest cooperation among shippers, carriers and receivers which has welded the transportation of the Chicago region into the invincible war force it now is." Pooling of efforts to get the most out of existing equipment, the activities of the Mid-west Shippers Advisory Board with its 1600 major shippers in this area, the prompt release of cars and full cooperation in other ways were all pointed out by the Department of Commerce as indicative of a job "well done."

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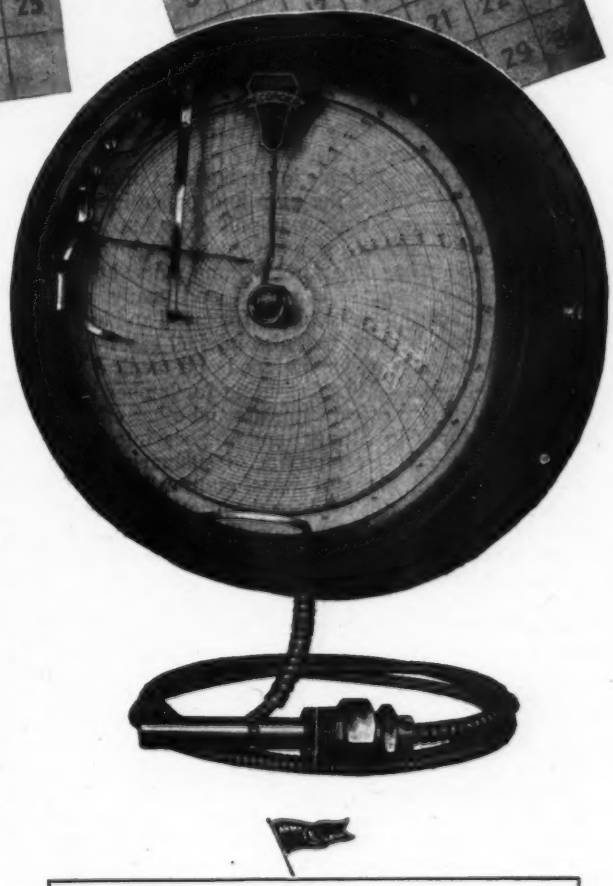
Have you had a chance since pre-war days to survey your whole plant set-up with a view to getting *all the help you can* from Temperature Recorders? If not, you may be surprised to find how much your overall production can be improved by equipping a few neglected points with Foxboro Temperature Recorders.

These precision-engineered instruments give unerring guidance that eliminates any need for guesswork in controlling critical temperatures. Their ultra-sensitive thermal system reacts to slightest changes . . . their light, strong recording mechanism "writes it down," instantly and continuously, without loss of accuracy.

No matter what step in your operation demands uniform temperature, Foxboro Temperature Recorders will automatically give you the exact information to save quality-variations, spoilage, re-runs and lags in output.

Why not make a list *right* now of the trouble-spots that Foxboro Temperature Recorders might eliminate once and for all? Write for detailed Bulletin 198-2. The Foxboro Company, 114 Neponset Avenue, Foxboro, Massachusetts, U. S. A.



TEMPERATURE RECORDERS
by
FOXBORO
REG. U. S. PAT. OFF.

MAY PROVIDE MORE MANPOWER FOR INDUSTRY

(Continued from page 7)

They fear that engaging in woodcutting will endanger their status as farmers. Farming and logging are complementary operations in this province. In his slack season the farmer can go into the bush and employ time profitably which would otherwise be wasted. In the opinion of the industry the fear in farmers' minds that their deferment will be jeopardized by engaging in woods operations would be eliminated if the cutting of pulpwood were declared an essential industry as has been done in the United States. That, I repeat, is the considered opinions of our woods managers—the men who know woods labor as nobody else in this country knows it. That is one thing we have asked the Government to do.

"You may question whether this would draw men away from other essential industries such as shipbuilding," he continued. "Because of the very nature of woods operations, this would not happen. Nor will it interfere with the production of essential foodstuffs. The time which could be profitably spent in the woods is time which will, this winter, be wasted, if this fear on the farmers' part is not eradicated. And our manpower situation is not such that we should have men staying idly at home when there is vital work to be done for the war effort."

Regarding the "vital role in the business of modern war" being played by the pulp and paper industry, Mr. Smith declared that wood-pulp goes into explosives, synthetic fibers for parachutes, fragmentation bombs, powder bags, paratroop jump suits, hospital wadding and surgical bandages and many other things. Pulpboard is substituting for metal and lumber in many ways, he said, and also in shell cases, blood plasma containers, packaging food and medical supplies. Building board is substituting for lumber in the rapid construction of cantonments and other essential buildings, for ship fittings, and it goes into radiolocators. Paper is a component of submarine detectors; goes into millions of maps, multiwall sacks for food, and newsprint is used for the printing of "bombphlets," the leaflets dropped by fliers over occupied territory, and book and magazine papers are used for a similar purpose, he said.

"In addition, all of the pulp products play their part on the home front; notably in the production of newsprint so that the morale of our people may be sustained through the dissemination of accurate and reliable news on the progress of the war," Mr. Smith said.

Referring to his statement that the crisis in the industry would have far-reaching repercussions in the post-war world, the speaker said: "Canada is vitally dependent on exports and the great export products of Canada are gold, wheat and pulp and paper. Over a period of years the pulp and paper industry has outranked the other two as a producer of foreign exchange. What is the future of these three export commodities?

'In the postwar world it is undoubtedly true that there will be an immediate demand for Canadian wheat. The question arises, however, whether the countries who need this wheat will be in a position to pay for it in cash or in kind. Canada can give away this wheat. It is a question whether she can sell it. The gold mining industry has been badly disorganized as a result of the war. The very future of gold mining is today obscure.

"The third and greatest producer of foreign exchange—and therefore jobs for Canadians—is the pulp and paper industry. Despite the fact that its products are today being used for war purposes, these products are essentially the same as they were in times of peace. This industry and this industry alone is in a position, immediately after victory, to export its produce to a market which has the necessary ability to pay for these products, namely, the United States.

"Do not let us for a moment imagine that the United States in the post-war period must inevitably depend on Canada for pulp and paper," he said. "While Canada today, and to a much lesser extent, Newfoundland, are the sole sources of supply on which the United States can draw, it has not always been so. Before the war the Canadian industry faced intensive competition from Scandinavian countries and will face similar competition after victory. That fact has an important bearing on the present problem."

Cut in Pulp Serious in Effect

Supporting his contention that the curtailment of pulp and paper production would affect every man, woman or child in Canada, Mr. Smith declared that thousands of families in centers like Kenogami, Port Alfred, Grand Mere and Three Rivers are almost entirely dependent for their very existence on the continuation of operations.

Newsprint mills are not readily adaptable for other purposes, and a mill, once closed down, cannot reopen at a moment's notice, he said. It takes months to put a mill in mechanical order and the wood which is consumed in any given year must be cut the year previous. He said that in 1939 the investment in mills alone totalled $597,000,000 as against $59,000,000 for the automotive industry. In the same year the industry outranked all other Canadian manufacturing industries in salaries and wages paid out and was second only to sawmills in the number of workers employed. In the mills alone over 31,000 men were employed, and another 100,000 were employed part-time in woods operations.

In a typical pre-war year the industry paid some $80,000,000 on transportation; $30,000,000 in taxes; purchased $17,000,000 worth of electrical power; $13,000,000 worth of chemicals; $3,000,000 worth of machine felts, to say nothing of the investment in machinery replacements. Purchases of wood from farmers and small operators amounted to some $17,000,000, he said. The food bill alone for the men in the woods amounted to about $6,780,000 and every province in the Dominion profited from these expenditures.

Citing figures on possible expenditures for new improvements in various industries after the war, Mr. Smith stated that the pulp and paper industry will be ready to spend about $60,000,000 more than the next six industries combined on such improvements.

"Those millions can be translated into jobs—and, I repeat, jobs and more jobs are what will be needed," he said. "There will be need for steam fitters, millwrights, electricians, power plant engineers, etc., in pulp and paper industry."

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In the cleaning and de-greasing of metal parts, in the manufacture of TNT and nitroglycerine, in the preparation of food products for the armed forces, in the scouring of raw wool used for uniforms and blankets, in the manufacture of aluminum, and other products needed for war material; the high quality and uniformity of Diamond Alkalies mean better results and faster output.

In products normally made for civilian use but now required in large quantities for war service—products such as glass, leather, paper, rubber—experienced plant operators naturally turn to Diamond for their alkalies. With vital war needs demanding faster and faster production, they want the alkalies they know to be pure, uniform and satisfactory in every way.

To meet this increased demand, our system of Controlled Manufacture, developed during peace times, enables us to maintain highest quality while achieving maximum production.

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E. Y. Brown, Jr. Heads Downingtown

The Downingtown Manufacturing Company, Downingtown, Pa., announce the election of Ellis Y. Brown, Jr., as president of the company. He succeeds the late Charles L. Ellis, recently deceased.

Mr. Brown has been associated with the company since 1902. He became treasurer of the firm in 1903

ELLIS Y. BROWN, JR.

and in 1910 was made secretary and treasurer. He became second vice president, secretary and treasurer in 1932 and in 1941 was made first vice president, secretary and treasurer. His present position is that of president and treasurer.

Mr. Brown is a graduate of Haverford. He is vice president and a director of the Downingtown National Bank.

The policies of the company remain unchanged; Jacob Edge continues as vice president and sales manager, Enright A. Ellis remains as manufacturing manager, and E. T. Street as chief engineer.

Waste Paper Short Situation Serious

Paul W. Zockhausen, executive secretary for New York City, General Salvage Branch, War Production Board, 350 Fifth avenue, New York, states that the waste paper situation is very serious. New York City can produce more waste paper for war production than any other area in the country, but for various reasons the campaign is very hard to sell. One of the reasons with which you are familiar, is that during the campaign a year ago, so great a supply was generated that it could not be absorbed by the mills. There is no possibility, at least in the near future, that this can occur again. Before we agreed to present again the need for waste paper in New York City, we made a careful investigation as to the requirements of war production in this field, and I can assure you that it is a real war necessity.

In its summary of the acute shortage of waste paper General Salvage Branch states that the United States is faced with its most serious paper shortage. Because of the manpower situation, the United States and Canada are able to turn out only a fraction of the wood pulp produced last year. And yet, the demand is growing daily.

Before the war, the big users of paper were publishing houses, stores, industrial plants and the government. These agencies are already economizing, but conservation does not furnish a complete solution; we must salvage for re-fabrication as well.

In 1941 the greatest and newest consumer of paper entered the field—the Armed Forces. *The Army fights with paper!* Each cartridge and shell is brought up to the guns in a paper container. Aerial bombs are fitted with heavy paper rings. Food and ammunition shipped overseas this year will be packed in over half a million tons of paper. Front line TNT demolition bombs are made of paper-board. Even blood-plasma is packed in cartons.

All these articles can be made from waste paper if it is available—but if waste paper cannot be had in sufficient quantity, they must be made from the same dwindling supply of wood-pulp from which wrapping paper, bags, cartons and other articles for civilian use are made. A wholehearted response to the appeal for waste paper will therefore not only assure the prompt delivery of war material to the fighting front, but also relieve the squeeze on paper products for civilian use which are so essential to the regular course of business.

The drastic need for waste paper will be answered in part by housewives, Boy Scouts, the Salvation Army, and other groups cooperating with Salvage Committees. But the WPB, in emphasizing that the shortage of waste paper is now acute and critical throughout the nation, is urging all food concerns, drug chains, department stores, packers and shippers, merchandising outfits, and, in fact, virtually every type of business and industry which, in the ordinary routine of commerce, is reliant on paper in some form, to save its paper and sell it to a paper dealer or contribute it to a salvage agency.

This is a campaign in which every body can take part. Housewives and school children play an important part in the drive, but industry, having a double stake, can and should accept the major responsibility. Retail stores, offices, hotels, shops, department stores, all should establish regular salvage procedures remembering, primarily, that waste paper has become vital to the fighting fronts and supply lines. Waste paper, too, goes to war.

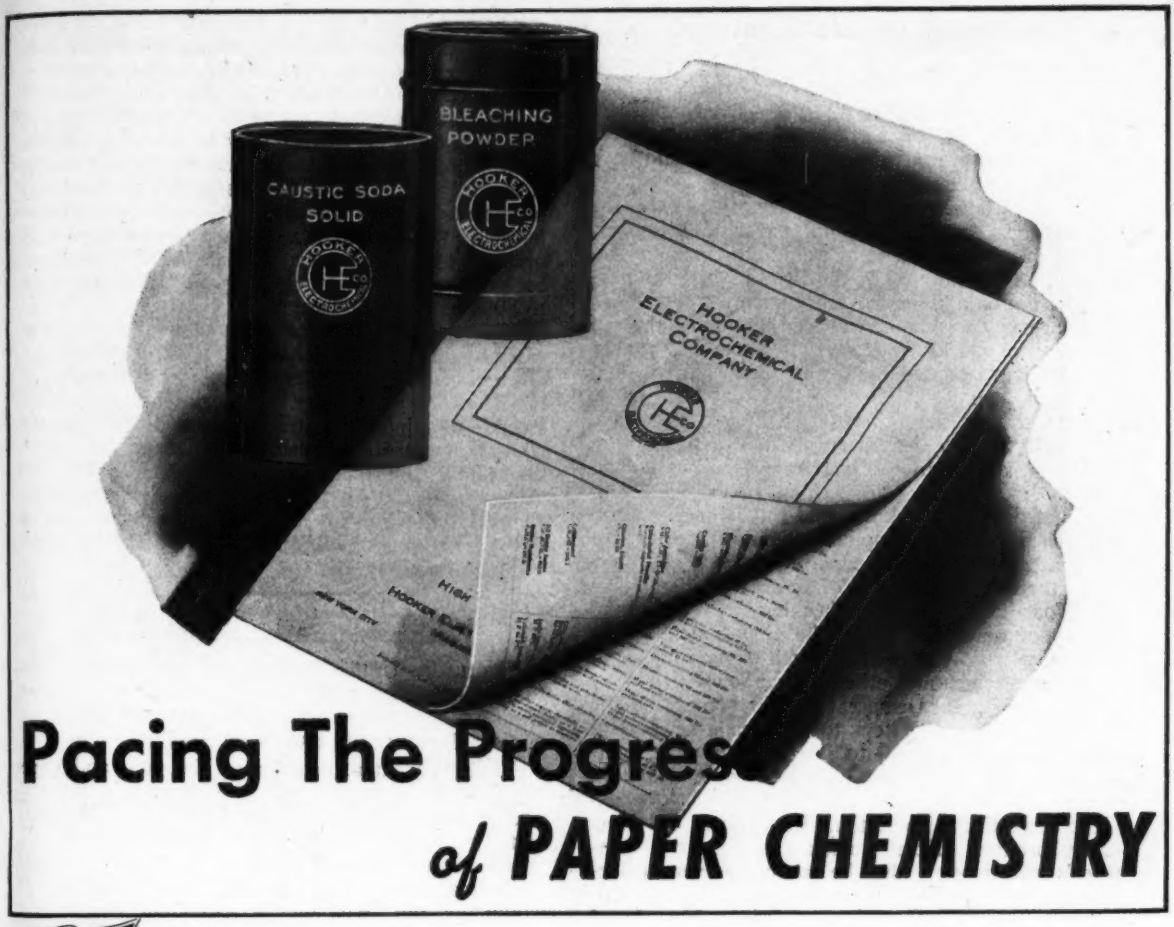
Manpower and transportation shortages make pickups of less than 100 lbs. uneconomical. But no matter what quantity you have, save it and call: Manhattan, Mu 3-9669; Brooklyn, Ma 5-0061; Richmond, Gi 7-1000; Queens, Cl 3-0175; Bronx, Fo 5-1500.

Governments Cuts Use of Paper

WASHINGTON, October 11, 1943—The War Production Board announced recently that the United States Government, as well as newspapers, magazines and printers, is curtailing its use of paper. Already it has cut it down by 25%.

Harold Boeschenstein, coordinator of WPB's paper conservation activities, said that a saving of 7,800,000 pounds of printing paper and some 182,000,000 pounds of chemical wood pulp had been effected by the public printer during the fiscal year 1943.

Writing paper mills, manufacturing bond, ledger, mimeograph, duplicator and flat writing papers, report a 24% reduction in Government orders placed during the four-week period from August 14 to September 4, as compared to the preceding four-week period.



Pacing The Progress of PAPER CHEMISTRY

In a chemical's formula, there is no symbol for experience. Yet it's an invaluable ingredient. In assuring the success of processing operations, there is no substitute for it.

A few facts about HOOKER experience will help you in selecting chemicals. The original two HOOKER products — bleaching powder and caustic soda—have been used in the pulp and paper industry throughout this company's entire history.

As the number of products expanded from two to more than a hundred, HOOKER has helped in pacing the progress of paper chemistry. Its research into methods of chlorination has contributed to improved techniques of treating sulphate pulps, and different techniques for sulphite pulps. The company's executives and technical men have shared their knowledge with the industry in authoritative articles in pulp and paper publications, covering such subjects as improvements in bleaching and direct chlorination.

To its early standbys, HOOKER has steadily added other products—chemicals for pulp and paper bleaching . . . for slime control and water treatment . . . for cleaning wire screens of pulp washers, and wires on paper machines...as plasticizers for paper impregnating compositions.

Send for your copy of a detailed list of principal HOOKER chemicals, including chemical formulas and shipping container data. Ask for list PT10.

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HOOKER ELECTROCHEMICAL CO.
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New York, N. Y. • Tacoma, Wash. • Wilmington, Calif.

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4818

Newsprint Quotas Tightened

WASHINGTON, D. C., October 11, 1943—Reflecting the increasing gravity of the pulp and paper situation, the War Production Board told newspaper publishers that appeals for additional newsprint allocations over their quota in the fourth quarter of 1943 would have small chance of success.

Harold Boeschenstein, special coordinator of the divisions concerned with pulp, paper and lumber, said the growing shortage of pulp and paper had resulted in a tightening up by the Printing and Publishing Division on appeals for more paper.

The agency coordinator warned that publishers who used reserve stocks in excess of quota before the Appeals Board passed finally on their petitions did so at their own risk. He also said that last-minute petitions stating that overuse has made necessary additional paper to prevent suspension of publication for the remainder of the quarter would not be approved.

He stated that the Printing and Publishing Division would certify to the Compliance Division, for appropriate action, those newspapers that did not obey orders for the conservation of newsprint.

A House subcommittee checking into dwindling supplies of newsprint asked the Government's own agencies, why do you need so much paper for official reports, magazines and other publications?

Chairman Boren, Democrat of Oklahoma, said the committee had sent letters to the heads of several departments asking them to justify their paper consumption. The action has prompted some reduction in paper use already, he said.

Representative Wolverton, Republican of New Jersey, brought official publications into the committee's investigation when he produced several colorful magazines he said were distributed by the Coordinator of Latin-American Affairs. He placed several other official documents into the committee record.

The committee meeting this week will call witnesses from the Army and the War Manpower Commission in its effort to get more woodsmen into the forests to boost the supply of United States and Canadian wood pulp. Among the witnesses will be representatives of the American Newspaper Publishers Association.

Restricts Fiber Containers

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, October 11, 1943—With the supply of new fiber shipping containers approximately 15 per cent below military, lend-lease and civilian requirements, the War Production Board issued an order today restricting their manufacture and use to "the most pressing uses."

Limitation order 1-B17 controls production and use of boxes, crates, cases, baskets, hampers and interior fittings and sheets or rolls used for packaging or protective purposes made wholly or in part from corrugated or solid fiber.

The order prohibits the manufacture of certain types of "unessential" fiber containers such as bottle and can carry-outs, counter boxes, display-shippers, laundry boxes and shells and retail gift boxes.

It prohibits entirely the use of new fiber containers for packing certain products, including advertising displays, posters, catalogues and magazines (including house organs), certain fresh vegetables, specified building materials, textiles, clothing, hardware, glass and leather products and some horticultural items.

It restricts to weighted quotas of 65 to 80% of use in the corresponding quarter of 1942 the amount of new fiber containers which may be used quarterly for packing other products. The restricted lists include cosmetics and perfumes, flowers, games, toys, jewelry, ornaments and certain paper products, which are to be held at 65% quota, and many other articles and products including dry animal foods, beverages, books, furniture, china, clothing and paints, restricted to 80% of the 1942 base quota.

The use of new fiber containers for retail deliveries after October 1 is limited to 80% of quota for mail orders and 65% for other methods of delivery.

The order also limits inventories but gives some latitude to shippers of seasonal food products. Those who do not use more than $500 worth of new containers a year are exempt, as are containers used for shipments to the Army, Navy (exclusive of post exchanges), the United States Maritime Commission, the War Shipping Administration and the Lend-Lease Administration.

Withholds Paper Export Data

Figures on United States exports of newsprint to foreign countries were submitted on October 8 to a House subcommittee bearing the legend: "Disclosure punishable under the Espionage Act."

A. G. Wakeman, director of the pulp and paper division of the War Production Board, handed the figures over to Representative Lyle Boren, chairman of the group which is investigating the situation as to newsprint used in newspapers. The figures were not made available to the press but Mr. Boren said he would find out "why they're so confidential."

Mr. Wakeman told the committee that non-essential uses of paper have been decreased, and savings further effected by reducing weights of numerous items.

In 1943 savings over 1942 range from 7,500 tons in napkins to 57,000 in heavyweight magazine covers, he said, and include such other items as books, tablets, envelopes, toilet tissue, stationery, note books, facial tissue, wax paper, towels and magazines.

To clear up what committee members described as an "idea prevalent in the country that waste paper no longer is needed," Mr. Wakeman said:

"Waste paper still is a critical material, and the industry could have used 48,000 more tons of it last month, but was unable to get it in because of manpower, rubber and transportation problems."

He brought out that WPB has "got the big users of waste paper committed to paying the ceiling price of $14.50 a ton," and that price is "adequate to encourage collection." Approximately one-third of the paper used in production today is waste paper, he said, and "we're going to get that up to 50%."

In discussing the feasibility of using chemical "de-inking processes on a large scale for recovering fiber, Mr. Wakeman said "that would be economically unsound."

A. N. Holcombe, chief of the WPB appeals board, told the committee the board has followed "the general policy of granting relief to those members of an industry who cannot comply with an order as written without an excessive or unreasonable hardship."

Paper Committee Issues Report

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 13, 1943—The Combined Production and Resources Board and the Combined Raw Materials Board today issued the following summary of the preliminary findings of the Combined Pulp and Paper Committee, created on August 25 to study the pulp and paper situation in United States, Canada and Great Britain.

The membership of the Combined Pulp and Paper Committee is as follows: Chairman, Charles E. Adams, Chairman of the Board of the Air Reduction Company of New York, of the U. S. Industrial Alcohol Company and others; Morris W. Wilson, President of the Royal Bank of Canada; Sir Clive Bailleu, British Member in the U. S. of Combined Raw Materials Board.

The report has not yet been considered by the Combined Boards nor its recommendations adopted. The committee is careful to point out that this is merely a preliminary report and that its final report, for which data are still being gathered, may indicate a different picture. It was felt, however, that certain basic facts brought out in the report are of such importance as call for their immediate publication.

The United States supply of paper and paperboard in 1943 was divided amongst fifteen principal uses as follows:

	Thousand Tons	*Percent of Total*
Newsprint paper	3,762	19.7
Groundwood printing paper	522	2.7
Book papers	1,492	7.8
Fine papers	927	4.9
Wrapping papers	2,112	11.1
Special industrial papers	164	0.9
Sanitary papers	808	4.2
Tissue papers	141	0.7
Absorbent papers	77	0.4
Building papers	792	4.2
Container board	4,098	21.5
Tube stock	267	1.4
Folding-box board	1,909	10.0
Set-up box board	854	4.5
Building boards	889	4.7
All other boards	245	1.3

The report strongly stresses the importance of "a speedy screening of requirements, and determination of the relative essentiality of end-product uses of pulp and paper products in order to establish the urgent need for additional woods labor." It is clear in the view of the committee, that a balance between supply and demand cannot be reached except by a strenuous effort both to increase the labor force in the woods and reduce the use of paper.

To Cut Paper to Book Publishers

WASHINGTON, D. C., October 13, 1943—Book publishers may anticipate a further curtailment in their use of print paper during 1944, H. M. Bitner, Director of the War Production Board's Printing and Publishing Division, has announced.

"The percentage limitation will remain at 90% of the 1942 use for the balance of this year," Mr. Bitner said. The Book Limitation Order L-245 is the only WPB order applicable to publishers, which imposes its control in terms of the full year instead of by quarters. The Division feels, therefore, that the paper quotas of many book publishers were depleted as of October 1 to the extent that a further curtailment in the fourth quarter would prove ineffective.

"It should be understood, however," Mr. Bitner pointed out, "that a curtailment may be anticipated as of January 1, 1944, and that it will include the book industry's share of the general cut levied against the graphic arts."

Predicts Big Cut in Newsprint Use

WASHINGTON, D. C., October 11, 1943—An official estimate that pulp and paper shortages in 1944 may become so acute as to force a 52% reduction in the use of newsprint and wrapping paper was made today, and the American Newspaper Publishers Assn. appealed for tariff act revisions to help meet the situation.

A special subcommittee for the combined production and resources board and the combined raw materials board submitted a report forecasting such a reduction unless a force of 38,500 additional pulpwood cutters can be found to work in Canadian and United State forests.

The committee said the 23,619,000-cord supply of pulpwood, available for 1943 use will drop to 17,599,000 next year, on the basis of the present labor supply. The report stressed there was no shortage of standing timber, or mill facilities.

The report coincided with a statement by Linwood I. Noyes, president of the Publishers Assn., that an amendment to the Tariff act of 1930 would permit publishers materially to increase the number of copies of newspapers available to the public in the face of diminishing supplies of newsprint.

The statement said that the Tariff act declared "standard newsprint paper" to be duty free, but failed to define newsprint. . . . "The Treasury Department, by a series of definitions and limitations, defined 'standard newsprint paper' in such a manner that it has not permitted the importation of newsprint that varies from narrow and rigid standards. In essence, these restrictions mean that if newsprint is not made of certain components, in certain weights, in certain percentages and in certain widths of printing rolls, it cannot be admitted duty free."

Boston Trade Notes

BOSTON, Mass., October 11, 1943—To discuss the effect of the limitation of pulp for kraft items, a meeting of the Wrapping Paper Division of the New England Paper Merchants Association was held at the Association office Wednesday. Samuel Ginsburg, of Ginsburg Bros., Cambridge, Mass., presided.

George H. Sweetnam, president of George H. Sweetnam, Inc., dealer in confectioners' paper specialties, Cambridge, Mass., who had been at a hospital and is now at his home in Bedford, Mass., is doing well and hopes to return to his office soon.

Naval Aviation Cadet William A. Dempsey, Jr., who was with the Century Paper Company, Inc., has been advanced to Naval Aviation Tech at Memphis, Tenn.

Hinde-Dauch Output High

Third quarter production of Hinde & Dauch Paper Company of Canada was on a par with the preceding quarter and consequently production for the year will show some recession from 1942. The decline is directly traceable to the manpower shortage, for never in the history of the company has it had a heavier backlog of business than now.

Boris Dannemann Visits U. S.

Boris Dannemann, well known in paper and pulp circles in Brazil, where he represents Lyddon & Co. of London and of New York, left Rio on September 7 for a business trip to the United States.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending October 9, 1943

STOCKS

	High	Low	Last
A. P. W.	3	2½	2⅝
Armstrong Cork Co.	37¾	35½	36
Celotex Corp.	13	12½	12⅝
Celotex Corp., pf.	18¼	17¾	18
Certain-Teed Products Corp.	6⅜	6⅛	6⅜
Certain-Teed Products Corp., pf.	70½	64	68½
Champion Paper & Fibre Co.	21	20½	21
Champion Paper & Fibre Co., pf.	107½	107½	107½
Congoleum Nairn Co.	23⅝	22¼	22⅞
Container Corp. of America	21¾	20⅞	21
Continental-Diamond Fibre Co.	12½	11½	11¾
Crown Zellerbach Co.	16⅛	15⅝	15¾
Crown Zellerbach Co., pf.	98¾	97½	97½
Dixie Cup Co.	15	14¾	14½
Dixie Cup Co.—A	44¼	43	43⅜
Flintkote Co.	20½	19⅝	20
Flintkote Co., pf.	107½	107	107½
Robert Gair	3¼	2⅞	3
Robert Gair, pf.	14½	14	14
International Paper Co.	13	11⅝	12⅜
International Paper Co., pf.	67¾	65⅞	66⅜
Johns-Manville Corp.	91	87½	88½
Johns-Manville Corp., pf.	131½	130	130
Kimberly-Clark Corp.	31	31	31
MacAndrews & Forbes	25¾	25¼	25¼
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	39¾	37¾	37¾
Mead Corp.	8½	7⅞	8
Mead Corp., pf. A—6%	87½	87½	87½
Mead Corp., pf. B—5½%	77	75½	75½
National Container Corp.	12⅞	12¼	12¼
Paraffine Companies, Inc.	44⅞	44	44
Paraffine Companies, Inc., pf.	101	101	101
Rayonier, Inc.	13⅞	13½	13⅝
Rayonier, Inc., pf.	31⅜	30⅞	31⅛
Ruberoid Co.	27¼	26½	26½
Scott Paper Co.	40	39½	39½
Scott Paper Co., pf.	....	....	....
Sutherland Paper Co.	29½	28⅜	29½
Union Bag & Paper Corp.	9½	9	9⅛
United Paperboard Co.	4⅜	4¼	4¼
U. S. Gypsum Co.	74½	73¼	73¼
U. S. Gypsum Co., pf.	176½	176½	176½
West Virginia Pulp & Paper Co.	15⅝	15	15⅛
West Virginia Pulp & Paper Co., pf.	....	....	....

BONDS

Abitibi Pulp & Paper Co. 5s '53	69½	69½	69½
Celotex Corp. 3¾s '55	102⅛	101¾	101¾
Certain-Teed Products Corp. 5½s '48	101⅝	101⅜	101⅜
Champion Paper & Fibre Co. 4¾s '50	....	....	....
International Paper Co. 6s '55	106½	105¾	105¾
International Paper Co. 5s '47	103⅞	103⅝	103⅝
Mead Corp. 3½s '53	....	....	....
West Virginia Pulp & Paper Co. 3s '54	....	..	....

New York Curb Exchange

High, Low and Last for Week Ending October 9, 1943

STOCKS

	High	Low	Last
American Box Board Co.	7¾	7¾	7¾
Brown Co., pf.	....	....	....
Great Northern Paper Co.	32⅜	31	31
Hummel-Ross Fibre Corp.	4⅜	4⅛	4⅜
St. Regis Paper Co.	3¼	3	3
St. Regis Paper Co., pf.	....	....	....
Taggart Corp.	4¼	4	4

BONDS

American Writing Paper Co. 6s '61	98	98	98

Offers Abitibi Reorganization Plan

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 11, 1943—A well-known Toronto statistician has prepared a new type of plan for reorganization of the Abitibi Power and Paper Company, Ltd. The plan has a number of usual features. One feature would reduce by cash payments the claims of the bondholders on principal account to 50% of the present claim by payment of $80 for every $1,000 bond held, or $3,861,360. Then the accrued interest is reduced to an even ten years of $500 per $1,000 bond by payment of $74 per $1,000 to cover the interest over and above the 10-year period from 1932 to 1942.

Another feature of the plan is to retain preferred stock in the reorganized company. All other plans so far have limited the capital structure to funded debt and common stock. The plan also gives a larger share probably of the new common to the present common stock than most plans, the exchange being two shares of new common for three shares now held.

The new plan offers an innovation also in that the proposed issue of new bonds, $500 for $1,000 originally held, or $24,133,500 in place of $48,267,000 of the original issue (the balance having been paid for already in cash or under the new plan) would provide that Canadian holders would receive bonds payable as to principal and interest in Canadian dollars only (whereas now they are payable also in U. S. funds or in Sterling). Non-resident holders would receive bonds payable as to principal and interest at the option of the holder in Canadian or U. S. dollars or Sterling at par. The new bonds would be dated December 31, 1943, and would mature in 20 years, on December 31, 1963, and be redeemable at a "reasonable" premium. A sinking fund of $300,000 and interest saved would retire $10,000,000 by maturity.

Masonite Earns $2.04

The Masonite Corporation set a new high record in annual net sales for the sixth consecutive time, Ben Alexander, president, revealed yesterday in the annual report to stockholders. Total sales for the year ended on Aug. 31, 1943, were $18,763,938, compared with $17,044,152 in 1942 and $12,932,976 in 1941.

Because of increased material and production costs and larger provisions for wartime contingencies, the net profit for the year declined to $2.04 a share from $2.58 reported in the previous year. After deducting $3,914,000 provision for Federal income and excess profits taxes, $345,000 State income taxes, $575,000 provision for wartime contingences including renegotiation of war contracts, the net profit was $1,256,243. This compares with net profit, based on final adjusted figures, of $1,616,806 in previous year.

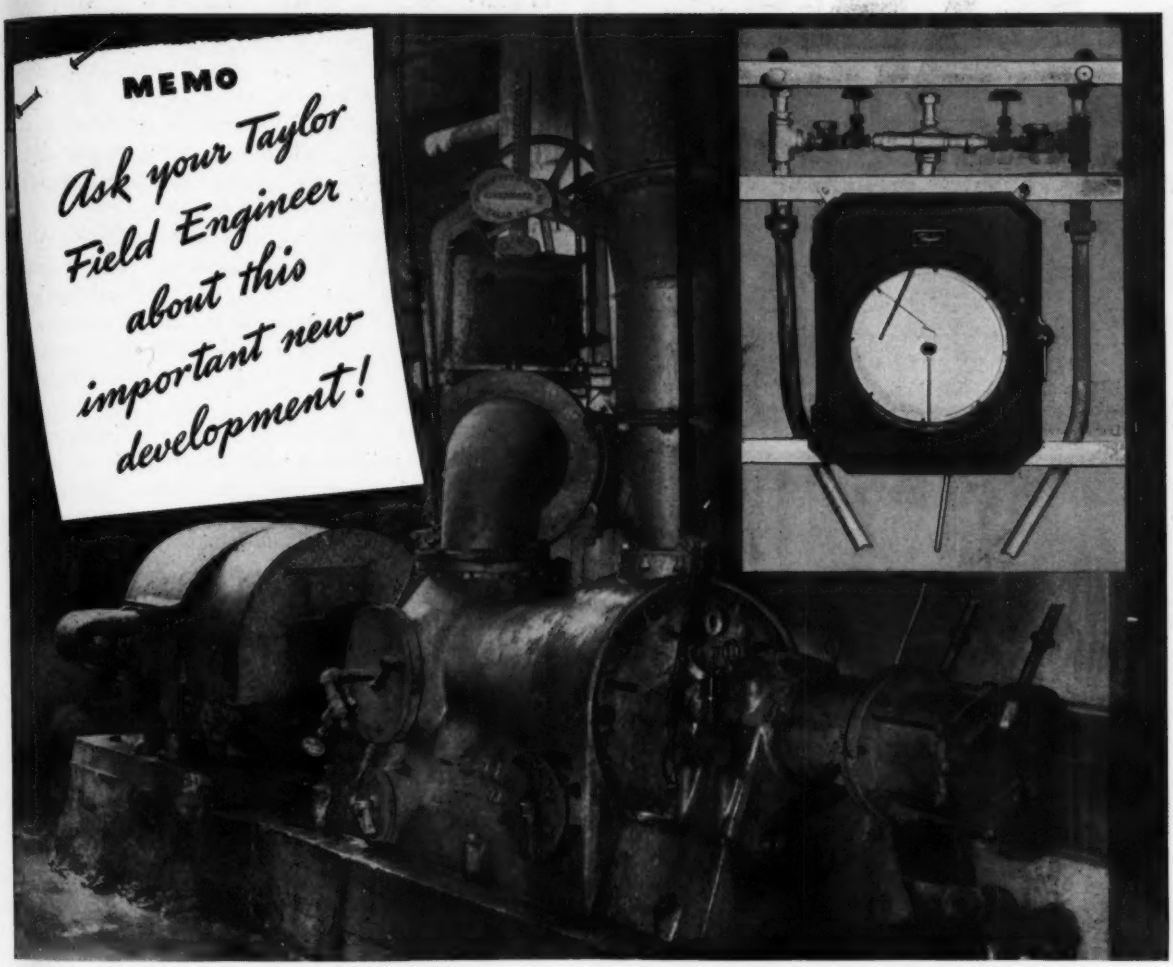
Current assets on Aug. 31 last, were $10,489,999, and current liabilities $6,036,451, a net working capital of $4,453,547. The corporation's holdings of $51,100 in United States Treasury tax notes has been enlarged during the last month to a total of approximately $2,500,000, with a commensurate reduction in cash.

West Virginia Votes Dividend

At a special meeting held last week in lieu of the regular meeting which ordinarily would have been held on October 19, directors of the West Virginia Pulp and Paper Company declared a dividend of 50 cents a share on the common stock.

Kimberly-Clark Engineers Meet

Forty chemical engineers of the Kimberly-Clark Corporation held a dinner October 5 at the Copper Kettle at Appleton, Wis. W. H. Swanson, of the corporation's staff, gave a talk on explosives.



Here a Taylor Plug Pressure Recorder on floor above refiner enables operator to conveniently and precisely adjust plug pressure best suited to each furnish.

HERE'S a new application of Taylor Accuracy to stock refining that will not only help you produce a more uniform sheet—but make it easy for you to duplicate previous satisfactory results.

Whatever sheet characteristic you want, it is necessary to maintain processing pressures between the rotating and stationary section of the refiner to the pressure best suited to each purpose and furnish. The Taylor Plug Pressure Recorder enables your operator to do this. As in the installation shown here, it can be located on the floor above, and enable your operator to make any adjustments in pressure necessary to take care of changes in stock consistency, basic weights, or furnish.

The principle involved in this Taylor Plug Pressure Recorder has been in successful operation on various processing units for over nine years. It is rugged and accurate and will readily withstand the operating abuse in the average plant. Its use with any stock processing unit will definitely enhance the overall efficiency of the machine. Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada. *Instruments for indicating, recording, and controlling temperature, pressure, humidity, flow, and liquid level.*

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Taylor Instruments

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★ KEEP ON BUYING U. S. WAR BONDS AND STAMPS ★

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

Henry J. Berger
EDITOR

Vol. 117 October 14, 1943 No. 16

COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

CURRENCY STABILIZATION

Any proposed course in the conduct of business after the war must include and be very largely based upon a practical rather than upon an ideal conception. A sound policy of domestic economy and a realistic conduct of foreign trade are seemingly essential in any program. Much of the current thought on these important factors is distributing. The political rights and economic strength of all nations in the world is to be desired, but America represents a substantial part of the world and its future rights in any association of nations should be fully protected. As trade rivalry is one of the major causes of misunderstanding and a certain potential cause of war, there is need for sound public policies. Thus far no definite and comprehensive program has been published. Maybe it is too early to formulate such a plan but surely it cannot be too early to think about and discuss the many aspects of policies which appear best for the future prosperity of the United States.

In any well balanced policy of domestic and international trade, the first essential requirement would seem to be the base on which it is conducted. The gold standard seems to possess the greatest possibilities. In an analysis of currency stabilization in the last issue of *The Guaranty Survey,* published by the Guaranty Trust Company of New York, a gold base was declared essential. "How to achieve stability is the important problem," the article pointed out. "It is our belief that no method of stabilization yet devised or suggested is so sound or so easily operated as the international gold standard—with free coinage of gold, free markets and private ownership of gold, and currencies freely convertible into gold, both for domestic use and for shipment abroad. If the abnormal conditions that exist at the close of the war make an immediate return to the free gold standard by some nations impossible, it may be necessary for such nations to resort temporarily to the gold exchange standard, whereby countries with adequate gold reserves 'tie' their currencies to those based on gold by using their bank balances in gold-standard countries as reserves in lieu of actual gold holdings. Restoration of the free gold standard, however, should be the universal objective."

In discussing a need for sound public policies *The Survey* asserts that, "The success of this or any other program must depend finally on the adoption of sound internal economic and political policies—balanced budgets, reasonable tariffs and trade regulations, avoidance of central bank and Treasury operations that interfere with the price reactions essential to the operation of the gold standard and, in general, governmental policies that promote business confidence instead of destroying it. Every individual knows that his promises to pay will not be accepted by his neighbors unless he keeps his financial affairs in order. Similarly, no country can expect to have its currency acceptable at a stable value in world markets unless its fiscal affairs are under control, its price level is reasonably stable and its internal economy is functioning smoothly. Internal stability is a prerequisite to international stability. If sound governmental policies directed toward this end are followed, the gold standard can work successfully in the future, as it did in the past. If such policies are not followed, international trade and finance will break down under any conceivable system."

In its study of post-war problems *The Survey* said in part: After the war the world will be faced with two distinct and separate problems. One will be that of readjustment to a peacetime basis. Stores of many consumable commodities will have been nearly exhausted, and in many instances the means of production and transportation will have been destroyed or badly impaired. In large part, these must be replaced and rebuilt on credit; but the task cannot be done on short-term credit, and it should not place an undue strain on the international exchanges. It should be dealt with through sufficiently long-term credit, partly because it is good business to promote such rehabilitation, partly because humanitarian considerations require it and partly because the distribution of certain surpluses that will exist at the end of the war will aid in the solution of the unemployment problems that may arise. As far as the second problem—that of normal foreign trade and the stabilization of international exchanges—is concerned, the stability of only a few currencies, which are in fact international as well as national, is of primary importance. . . . The process of gold redistribution, however, even under the most favorable conditions, will probably be slow and difficult. It cannot be permanently achieved by the easy expedient of loans, for loans have to be repaid. It can be accomplished only by the repatriation of foreign capital now in-

vested in the United States and by merchandise trade balances."

In commenting on the obligations of creditors *The Survey* states in part that "The mistakes made in extending long-term credit after World War I must not be repeated. Although these mistakes and their unfortunate results are exaggerated in the popular mind, it is true that too many loans were made for social purposes which, while temporarily beneficial to the borrowers, in no way increased their ability to service their external debts. Sound long-term loans are those that help expand the productive capacities of the borrowing countries, thus stimulating exports, diminishing imports and increasing the amount of foreign exchange available for the service of the loans. It is to be hoped that our experience in the past, together with helpful cooperation from the State Department and other Government agencies and the recognition on the part of the borrowers themselves that only this type of loan is desirable, will prevent another era of misguided long-term credit."

Groveton Employees Get Increase

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 11, 1943—The Regional War Labor Board has announced a decision in settlement of a dispute at the Groveton Paper Company, Inc., Groveton, N. H., ordering a five-cent per hour wage increase for all 600 employees, effective only after the Office of Price Administration had acted on the company's request for an increase in price ceilings.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1943		Corresponding Weeks—1942	
August 28	91.5	August 29	83.3
September 4	91.4	September 5	83.3
Sept. 11 (Holiday Sept. 6)	75.7	September 12	70.3
September 18	92.4	September 19	85.2
September 25	92.1	September 26	87.2
October 2	92.7	October 3	87.8

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1942	104.5	103.9	102.9	100.4	95.3	87.4	75.8
1943	87.2	88.9	89.5	88.7	91.5	86.5	84.4

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1942	80.8	82.8	90.6	86.9	80.1	90.4
1943	91.1	88.3	....	....	....	....

COMPARATIVE YEARLY SUMMARIES

	1936	1937	1938	1939	1940	1941	1942	1943
Year to Date..	78.4	85.9	69.6	79.8	86.2	95.2	92.1	88.5
Year Average..	80.4	79.8	71.5	83.4	85.6	97.4	90.4	....

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1937	83	89	89	91	88	80	69	77	72	70	57	47	75
1938	56	63	63	60	60	59	59	60	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	82	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	88	94	94	96	94	89	96	94	..	..	..	..

Week ending Aug. 28, 1943—96
Week ending Sept. 4, 1943—97
Week ending Sept. 11, 1943—83
Week ending Sept. 18, 1943—98
Week ending Sept. 25, 1943—96
Week ending Oct. 2, 1943—97

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

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Edited by R. G. Macdonald, Secretary

Amioca—A New Industrial Starch

By C. G. Caldwell[1]

Abstract

Amioca, the starch produced from a new variety of corn, popularly known as "waxy maize" is characterized by its lack of amylose. It competes with tapioca and other related starches but differs from them in that it retains the fluidity and non-jelling character of the original starch.

Amioca is the commercial name [2] for the starch produced from the genetic variety of corn popularly known as "waxy maize." The peculiar properties of waxy maize were first brought to notice in 1908, when the U. S. Department of Agriculture received samples of the seed from a missionary in China. The endosperm of the new corn had a different appearance and its cut surface resembled a hard wax, hence the term "waxy" was used to designate this type of corn.

Because in later years the starch prepared from waxy maize was found, rather surprisingly, to have properties similar to those of root or tuber starches such as tapioca and potato, a number of investigators in the various state agricultural experiment stations and in the United States Department of Agriculture became interested in developing suitable types for commercial planting. It is interesting to note that the waxy type of endosperm starch is not limited to corn. Sorghum varieties have been grown in the United States for syrup, forage or grain, since 1854. The Chinese have grown and recognized glutinous (waxy) rice since ancient times. Several varieties of waxy barley are known.

Since the production of starch from corn is a thoroughly developed procedure, waxy maize is generally considered the most practical source of the waxy-type starch. The milling of sorghum grains has been considered, but these offer certain difficulties in the extraction and purification of the starch by usual methods. Unless the processes of manufacture and the quality of the waxy varieties are improved, the extraction of starch from sorghum seeds is likely to be expensive.

Development Started in 1936

Development of a waxy hybrid corn suitable for growing in the corn belt was started in 1936 by the Iowa Agricultural Experiment Station, with the cooperation of the U. S. Department of Agriculture. Some work along these lines was also undertaken at the Illinois, Nebraska and Wisconsin experiment stations. Perhaps the easiest way to explain hybrid corn is to compare it to the mule. A mule is the first generation hybrid between the mare and the ass, and partakes of the better qualities of both parents. It does not reproduce but must be reproduced anew each generation for its value in itself, not for reproduction. A corn hybrid is the first generation hybrid between two strains of corn. Its value is for seed in the production of a crop of commercial corn. This corn will grow, but cannot be used for seed without a loss in yield in the succeeding generations. The advantages of hybrid corn are the larger yields and the superiority in quality and in sturdy ability to withstand storms, disease and other vicissitudes. Finally, it must be remembered that not all corn hybrids are successful.

At the Iowa Experiment Station it was decided to convert to waxy, a standard hybrid of wide adaptability and of proved superiority to ordinary open-pollinated corn. This particular hybrid was a double cross, that is, it was a hybrid between two single crosses involving four different inbred strains. Before developing the hybrid it was necessary to cross the inbred strains with a waxy strain and then to back cross the waxy strains of the four lines to the parent lines to regain their qualities of a good commercial corn and at the same time retain the waxy endosperm. As is readily seen, the development of a waxy hybrid requires six or seven years, even when greenhouse facilities are used to get more than one generation a year. Limited quantities of waxy corn were grown in 1942 and slightly larger acreages were planted this last season in Iowa and Nebraska. It is anticipated that considerably larger acreages may be grown in 1944, providing the starch this year is found to perform satisfactorily in commercial trials and the economic conditions are favorable.

The growing of waxy corn on a commercial scale offers certain difficulties in that it must be sufficiently isolated from fields of ordinary corn to prevent cross pollination and thus contamination of the waxy corn with ordinary corn. Furthermore, care must be taken to see that the waxy is not mixed with ordinary corn during harvesting, cribbing and shipment. Since waxy maize apparently has no advantages as stock feed, it is generally agreed that commercial production will be limited to those areas in the corn belt where corn is raised primarily for market and not for home consumption as live-stock feed.

The first commercial milling test on waxy maize was made in January, 1942. As was anticipated, it handled about like ordinary corn in the milling operations. However, certain disadvantages of the waxy maize were observed. The yield of starch and oil were somewhat lower than usually obtained with ordinary corn and some difficulty was met with in the

[1] Research Dep't., National Starch Products, Inc., New York, N. Y.
[2] It has been generally accepted by the various starch manufacturers.

settling and filtering of the protein for incorporation in feed. The Amioca starch from this first small milling is now available in various modifications for experimental purposes.

In considering the properties of this starch, it must be emphasized that recent advances in the knowledge of starch chemistry have shown that the starches from waxy or glutinous grains other than corn, differ from all other naturally occuring starches in that they possess only one component, i.e., amylopectin. Other commercial starches are composed of both amylopectin and amylose. The characteristic properties of amylopectin are clarity, stability in solution, lack of tendency to gel, and adhesiveness, while amylose is characterized by its tendency to gel and retrograde or thicken in solution and thus is responsible for the gelling characteristic and opaqueness of ordinary cornstarch.

Starch Research

In order to better understand the significance of the fact that Amioca contains only amylopectin, it is helpful to trace the recent developments that have clarified our conception of starch structure. Separation of starches into two components has been accomplished in several ways. Meyer *(1)* extracted starch with water at a temperature below the gelatinization point of starch. In this way the amylose fraction was partially removed, leaving behind the amylopectin. From quantitative estimation of the dimethyl, trimethyl and tetramethyl glucoses resulting from the hydrolysis of methylated starch, amylose and amylopectin, it has been shown that amylopectin consists of a branched structure of glucose chains while amylose consists of straight chain molecules such as are found in cellulose. Amylopectins have been found to have average molecular weights, considerably higher than those for amyloses.

Meyer reports values of 10,000 to 60,000 for amyloses and 50,000 to 1,000,000 for amylopectins. Hixon and Foster *(5)*, on the basis of their viscosity studies, believe the molecular weight of amyloses to be somewhat higher than the 10,000 to 60,000 range indicated by Meyer.

Pacsu *(2)* has found that the two fractions in starch may be separated by passing a dilute paste of the starch through cotton. Only the amylose is absorbed and on subsequent leeching of the cotton with warm water, it can be removed.

Schoch *(3)* has shown that amylose is precipitated

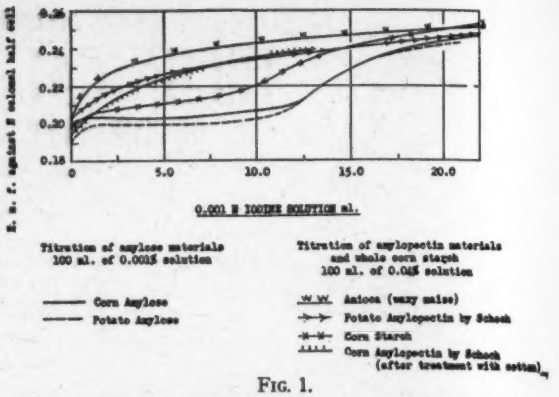

FIG. 1.

Curves illustrating the potentiometric titration of solutions of amylose and amylopectins with iodine solutions.

by butanol while amylopectin is not. While corn and potato starches both yield approximately 22% of amylose by this technique, none at all is obtained from that yielded by the "waxy" type of corn.

On the basis of the observation that the color of iodine-stained amylose is blue and that of amylopectin is purple to red, Bates, French and Rundle *(4)* concluded that a difference in the ability to bind iodine in complex formation might exist. Accordingly they titrated solutions of amylose and amylopectin potentiometrically with iodine. It was found that the activity of iodine in amylose solution remained essentially constant upon addition of iodine until complex formation was complete, while there was a continual rise in the iodine activity when iodine was added to amylopectin solution. Starches containing both components showed a break in the curve, potential vs. iodine added. The point of inflection was a measure of the amylose fraction present in the starch. With this technique, the authors found the percentages of amylose in corn and potato to be in agreement with the values obtained in Schoch's butanol precipitation method. Here again it was not possible to demonstrate the presence of amylose in the starch from waxy corn.

Typical Curves

Typical curves from the data of Bates, French and Rundle are shown in Fig. 1.

In Table I are shown the percentages of amylose found by the above authors in various starches.

FIG. 2.

Illustration of the non-gelling character of Tapioca and Amioca Starches as compared with Corn Starch. The samples were cooked in 15 parts of water over a boiling water bath, and were then allowed to cool to room temperature.

FIG. 3.

Illustration of differences in clarity between Tapioca, Corn, and Amioca starches. The samples were cooked in 15 parts of water over a boiling water bath, and were then allowed to cool to room temperature.

TABLE 1

Starch	Amylose, %
Waxy rice	0
Waxy sorghum	0
Waxy corn (Amioca)	0
Waxy barley	0
Tapioca	17
Rice	17
Banana	20.5
Corn	21
Potato	22
Popcorn	23
Wheat	24
Sago	27
Lily bulb	34

One difficulty presented by picturing the properties of starch as dependent on the presence or absence of the amylose fraction is that corn and potato starches although entirely different in properties show approximately the same content of amylose. One explanation was indicated by Bates, French and Rundle *(4)* when they noticed that the amounts of iodine bound in complex formation by amyloses from corn and potato starches were different. Foster and Hixon *(5)* investigated the viscosities of various samples of amylose to confirm the belief that amylose molecules are linear and that differences between the various ones are due to differences in chain length. Amylose from potato starch is believed to consist of much longer molecules than amylose from cornstarch and this then would explain the reduced tendency of potato amylose to gel or retrograde since the longer chains have more difficulty in becoming oriented parallel to one another for precipitation or crystallization. It should be pointed out that the non-gelling character of amylopectin is attributed to the branched nature of the molecules which prevents the orientation taking place that is necessary for precipitation or retrogradation. Just as the amyloses from different sources have different molecular weights so also do the amylopectins. In addition, it has been indicated that the degree and extent of the branching of amylopectins from different starches may show some variation. The amylopectin from ordinary cornstarch is thought to be very similar to that from waxy corn.

Characteristics

An important result of the fact that this new starch contains no amylose is that modified products such as thin-boiling starches made by wet acid hydrolysis retain the fluidity and non-gelling character of the original starch. This is in strong contrast to both potato and tapioca starches whose acid conversion products tend to be unstable and gel up because of the presence of shortened amylose molecules.

Hixon and Sprague *(6)* have reported this starch to gelatinize sharply starting at 70° C. and proceeding over a range of only 8°. This is in contrast to ordinary cornstarch which begins to gelatinize at 64° C. and continues over a range of 30° or more. The hot viscosity of dilute pastes prepared from this product has been reported greater than that of tapioca at temperatures of 75° to 90° C.

Considerable impetus has been given to the development of Amioca because of the curtailment of importations of tapioca starch. There was before the war an annual tapioca consumption in the United States of 350,000,000 pounds. Much of this has been replaced by cornstarch. However, it is estimated that from 75,000,000 to 100,000,000 pounds of tapioca are used for purposes where the properties of tapioca make it superior to other starches. It is believed that Amioca starch, together with the dextrines and other modification to be made from it, will be of particular interest to the food, textile, paper and adhesive industries, as a replacement for tapioca and potato.

Economic Future Uncertain

In considering the commercial development of this starch, it should be pointed out that its economic future is uncertain inasmuch as after the war it will have to compete with tapioca and related starches from Brazil, San Domingo and other countries in the West Indies, East Indies and Holland. A considerable quantity of these starches is accumulating in these countries and as the cost of growing waxy corn and milling it into starch is appreciably higher than that of regular cornstarch, it is difficult to see how it will be able to compete if large quantities of tapioca are again imported at relatively low prices. As the present status of the tapioca plantations in the Dutch East Indies now in Japanese possession, is unknown, it is impossible to predict how soon after the war tapioca shipments from the Far East will be resumed.

As has been indicated, the starch from waxy corn may prove to have advantages for certain uses since it is the only commercial starch available that consists solely of amylopectin. Confirmation of its advantages awaits more thorough commercial trials and the possible development of new uses of starch for which it is better suited than any other.

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Maintaining Electric Equipment

Under the title of "How to maintain electric equipment in industry," the General Electric Company has issued a new 372 page book. It is comprehensive in scope and treatment, with 500 illustrations and the information has been prepared by the company's engineers in such compact and usable form that it will be of value to all maintenance engineers.

The contents include chapter on battery trucks, bushings, cable and wire, capacitors, Diesel-electric locomotives, electric furnaces, etc. The chapter on industry control also includes general information on electronic control with a trouble-shooting chart and discusses the important phases of photoelectric control. These useful trouble-shooting charts are included for many types of equipment and comprise one of the most valuable sections of the publication.

Maintenance of instruments is discussed in another chapter and following chapters treat of insulation, interior and exterior lighting, lightning arrestors, midget heaters, motors and generators, rectifiers, regulators, switchgear, transformers, turbines and welders, etc. Technical data includes treatment for electric shock. A chapter on renewal parts explains how to order GE parts to save production time. The concluding chapter discusses the availability of the company's service shops and ways they can help users of GE equipment.

Copies of the book will be available this fall at $1.75 a copy and may be obtained from the main office of the General Electric Company, 1 River road, Schenectady, N. Y.

Wartime Modifications of Industrial Maintenance and Operating Practice

By Floyd L. Davis[1]

Abstract

A discussion is given of the ways and means of utilizing machine and electrical parts to the maximum advantage, with particular emphasis on carbon brushes, hoist cable, electric cable, and pumps.

The use of the metal spray for building up worn shafts and other parts is successful.

Rearrangement of maintenance crews, because of the drafting of men for the armed forces, is discussed.

Introduction

In normal times when material and men were plentiful, it was common practice to plan repair work on the basis of using the best material available and to keep labor costs to a minimum. When a machine was shut down for repairs any slightly worn part quite often was also replaced so as to keep the machine in as near perfect mechanical condition as possible. However, many a machine was run with a damaged part until it could be shut down without interfering with production schedules. This caused damage to associated equipment so that when repairs were made it was necessary to install a number of new parts in addition to the ones originally damaged. The added cost of this practice was offset by being able to meet production schedules which in turn was reflected in the profits of the company. It did, however, use a number of new parts which could have been saved if the machine had been shut down and repaired when the trouble first developed.

A good supply of repair materials was always kept on hand. These were usually bought on a quantity basis to take advantage of the maximum discounts.

Then, as governmental aid to the foreign countries increased and it was evident that the cost of materials was going to rise, it was considered good business to increase normal inventories of items which were in continual demand. This was justified by the money saved and the fact that it created a good market which helped the manufacturer, gave employment to more people and stimulated business in general. This was also encouraged by governmental action. During this period, however, no change was made in repair programs with regard to the conservation of materials.

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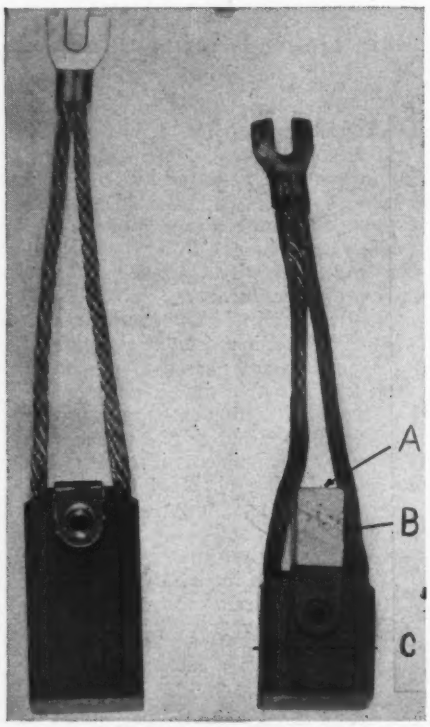

FIG. 1

Left—New Brush. Right—Partially Worn Brush. A—Wood Block Held by No. 10-32 Screw in Top-Center of Block. B—Wood Block. C—Brush Can Be Worn to This Point

Demands of War

Then came the war and with it a demand for raw materials to be made into tanks, guns, planes, ships, and other war needs. It also brought a need for skilled help to build the equipment and a demand for men in the armed forces. This created shortages of both men and material and again it was necessary for industry to change its policies.

Now repairs are made using a minimum amount of new materials and without regard to labor cost. Machines are shut down and repaired as soon as trouble develops; thus, reducing the amount of repair material used. Inventories are being reduced to a minimum and hundreds of machine parts which formerly were thrown in the scrap pile are now salvaged and put back to use. The cost of salvaged parts is frequently more than the original cost of a new part, due to labor costs of reconditioning. But due to savings of materials and restricted sale of new parts it is good business to salvage and repair this needed worn out equipment regardless of labor costs.

Mechanical and Electrical Maintenance

The following are a few examples of the many ways in which this salvage program is being carried out.

In the electrical field, controller fingers are being built up, redressed and put back in service. This requires the services of a welder and a very small amount of copper. This item, small in itself, represents quite a saving in steel and copper as it is unnecessary to replace the steel mounting and copper contact base.

In order to get longer life out of carbon brushes (Fig. 1) small blocks of hardwood are mounted on

top of the brush, by drilling and tapping the spring bearing plate on the brush and attaching block by a No. 10-32 machine screw countersunk in the block (Fig. 2).

These blocks enable the brushes to be worn down to within 3/8 inch of the top attachments. This gives as much as 40% added wear to the brush. This figure of course varies with the size of the brush and the application. Spring plates and copper pigtails from worn brushes can be returned to the brush manufacturer for remounting.

One of the materials most used in the electric field is paper plastic such as micarta. Because much of these materials is being used in defense plants and war production, the industry must get along with substitutes.

In many cases, maple and ash wood have been successfully used. It must be borne in mind that this material does not have the mechanical strength of paper plastic nor will it stand as much heat. However, a starter panel for a 250 hp., 440 volt, 3 phase, 60 cycle, synchronous motor was made from maple, and worked satisfactorily. Due to the porosity of the wood it was necessary to paint the surface of the panel with No. 1201 Glyptal paint. This provided sufficient protection against moisture. This starter has been in operation over six months and has never given any trouble. There are many other places where wood can be successfully used, the above being a typical example. It is good practice, however, when wood is being used in a damp location to impregnate the wood with paraffin.

However, there are many places where micarta or fiber must be used. Much of the micarta needed for these places can be obtained in a paper mill from old worn out doctor blades and calender pinions. When a doctor blade has worn too short for use on the machine there is still left a strip of good micarta about 3 inches wide and the length of the machine. Also, old worn micarta pinions can be dismantled by removing shrouds and bolts. Nearly all large size pinions are laminated and the thickness of the layers varies from 3/4 inch to over 2 inches. It is surprising how many needed parts can be fabricated from micarta obtained from these sources. There are other places around industrial plants where micarta is used and when worn out is thrown away. This discarded

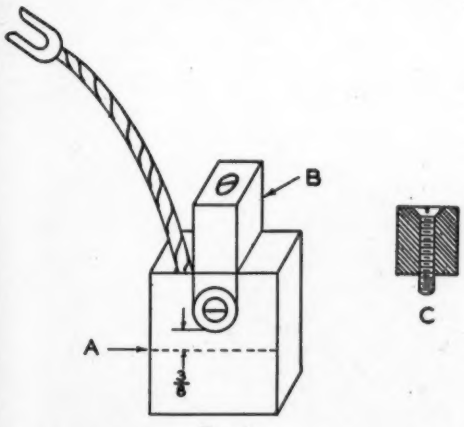

FIG. 2

Method of Obtaining Longer Life from Carbon Brushes. A—Point of Maximum Wear from Attachment. B—Wood Block in Place. C—Cross Section of Wood Block Showing No. 10-32 Machine Screw in Place

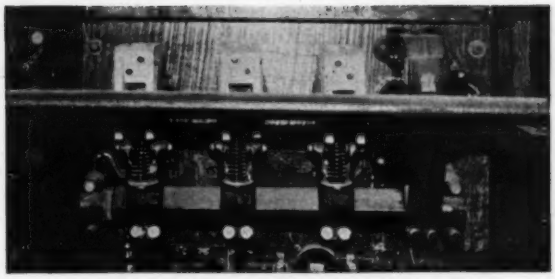

FIG. 3

material may fill the need of some other department. The moral, of course, is do not throw away any material until you are sure no other department can make use of it.

Copper wire is one of the biggest problems of any electrical department. In order to conserve as much wire as possible all used wire is returned to the storeroom where the bad sections are cut out and the good wire sorted into lengths. When a requisition for wire is received it is filled from this old stock, if possible. When it is necessary to replace a conduit run, the storeroom stock of reclaimed wire is checked and boxes are installed in the conduit run so that the short pieces can be spliced in the boxes. Of course, this does not always present the neatest job from an appearance or cost point of view, but it is highly satisfactory from an operating standpoint and reduces the draw on the new wire stock to a minimum.

This also has an additional advantage in that it permits the use of short lengths of conduit which in normal times would be thrown into the scrap.

The conservation plan was carried into the lighting field. Old reflectors which were considered as scrap were collected and reconditioned. This was done by straightening the hoods, spraying the reflecting surface with Opex Hi-Gloss white enamel and the outside with green enamel. It is surprising how well

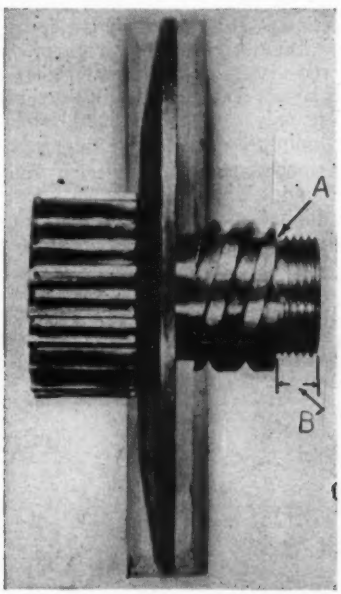

FIG. 4

Repaired Brake. A—Brazed at This Point. B—New Part

these reclaimed reflectors stack up with new ones. The Opex enamel, when new, has a reflection coefficient almost as good as the original enamel and can be cleaned with soap and water without injury.

It might be well to mention here that a good reflector can be made from plywood. This is especially true for trough and fluorescent fixtures. The opex enamel works equally well on wood and metal.

In a paper mill are many electric hoists which are in almost continuous use. Naturally the maintenance on these hoists is high. Considerable trouble is experienced with hoisting cables and controls.

In this mill, the same size hoisting cables are used on hoists which have various lifts so that by carefully examining a cable from the higher lift hoists, quite often bad sections can be cut out and the remaining cable salvaged for use on hoists of lower lift. This practice to date has saved many feet of new cable.

Another good example of field repairs resulting in saving of bronze is the load brake (Fig. 4) on one-ton Type U Harnischfeger hoists. The most failures occur at Section A in Fig. 5. This is the part that carries the lock nut assembly. Normally, the whole piece would be replaced. However, the damaged parts are now turned off at point A, the hub is bored out for a depth of about 2 inches and into this is pressed a new piece which is brazed fast at A. The part is then machined and threaded. When finished, it cannot be distinguished from a new part.

It might be well to introduce here a warning note. It might appear from the practices already mentioned and those which will be mentioned later, that the maintenance departments in the past have not been very efficient. This is not necessarily true. We must not lose sight of the fact that in normal times when material is plentiful it is much cheaper to buy a new part than to repair or salvage the worn-out part. However, under present conditions the extra expense is justified by the scarcity of materials and their limitations.

Some practices now being employed in motor repairs are the patching of windings by replacing only the bad section. This is only possible of course, if the winding has not been badly roasted. This practice is not recommended when materials are plentiful as some damage is done the coils in the throw which is lifted, and usually results in reduction of the normal life of a winding.

In large motors, the coils are carefully removed and reinsulated. The labor cost in an operation of this type is high, but the amount of new material used is extremely small.

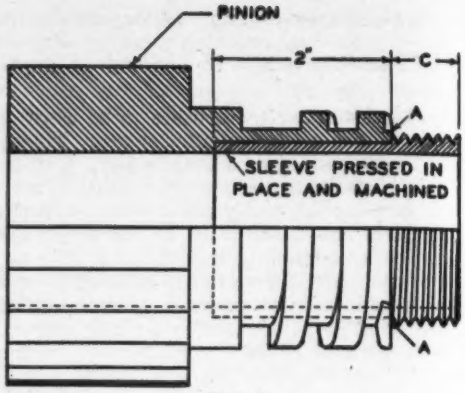

FIG. 5
Method of Repairing Load Brake on P. & H. 1-Ton Hoist. Brazed at A and Threaded

On synchronous motors and wound rotor induction motors worn slip rings are being repaired by building up the old ring with No. 25M bronze rod and then machining to original size. Figures 6 and 7 show how the metal is built up on a brass collector ring and the appearance of the finished ring.

Worn babbitt bearings are inspected and if practical are rebabbitted. In all cases, the babbitt is melted from the bearing and saved. This is later mixed with new babbitt and used in repairing other bearings. The reclaimed babbitt should not be used in bearings subject to heavy shock loads as the mixture may contain several grades, which has a tendency to change the characteristics of the babbitt. In large high-speed equipment, however, nothing but the best obtainable should be used; although, for average service the reclaimed babbitt has been very satisfactory.

Damaged and worn ball bearings are sent to the Ahlberg Bearing Company for reconditioning. These bearings when returned are as good as new and are within the tolerances of the original manufacturer. Not only are considerable savings made in the cost, but less new material is used.

METAL SPRAYING

Since steel shafting is difficult to obtain, worn and damaged shafts are being repaired by electric welding and metallizing. Shafts over 2 inches in diameter are usually repaired by electric welding. The shaft is placed in the lathe and at least $\frac{1}{16}$ inches cut removed. This varies some with the size of the shaft and its condition. It is then built up by electric welding using

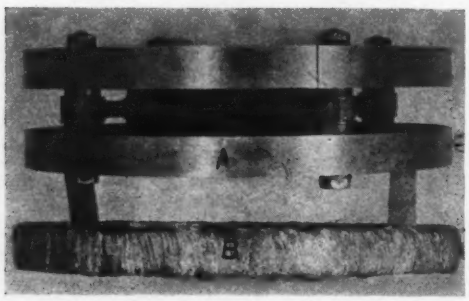

FIG. 6
Collector Ring from Synchronous Motor. A—Finished Ring. B—Material Brazed on Worn Ring.

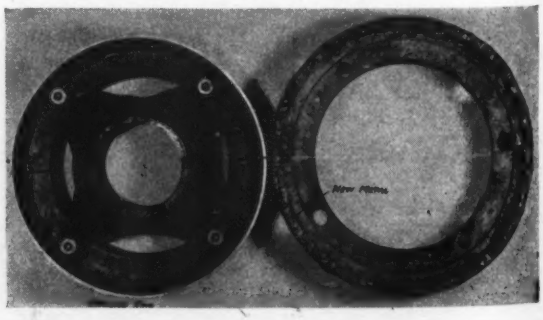

FIG. 7
Side View of Collector Rings

a No. 3 or No. 5 Fleetweld rod, and turned to original size.

Shafts under 2 inches are usually repaired by metallizing. The shaft is prepared by taking at least a ⅛ inch cut, leaving the bottom of the cut as a rough thread and cupping the end as shown in Fig. 8. It must be remembered that if the shaft is not properly prepared the sprayed metal will crack off.

Metallizing is used on smaller shafts as it produces very little heating of the metal. It can and has been used successfully on larger shafts, but it must be remembered that it is a mechanical bond and not material bond and is no better than the preparation of the shaft. Several cases where the shaft was subject to very abrasive materials and it was necessary to use chrome steel, due to the scarcity of chrome, the shaft was filled up with carbon steel and only about $\frac{1}{16}$ inch chrome used on the outside. This has given very satisfactory results and used little chrome.

Bolts and nuts are getting harder to obtain so a spot welder is being put in service to fasten together various metal parts which formerly used bolts. This will not do away with the use of bolts and nuts entirely, but will reduce the amount required. Bins have been provided in one shop in which used bolts, nuts and washers are kept. These are sorted and placed in the bins according to size. Since their installation the amount of new bolts and nuts withdrawn from stock by this shop has gradually decreased. This practice not only saves new material but also the workman's time which would be spent in a trip to the storeroom and illustrates only one example of what can be accomplished in a shop toward saving of scarce materials and time by a little planning and cooperation of the workmen.

Pump and motor couplings (pin and bolt type) in which the bolt and bushing holes were worn out of shape have been repaired by filling holes with a No. 25M bronze and reboring. These reconditioned couplings are as good as new and so far no trouble has been experienced due to unbalancing. This same practice can be employed in couplings of any size but the larger the coupling and the faster the speed the more important becomes the question of balance.

In pumps the shaft sleeves and case sealing rings require periodic replacement due to wear. These parts are built up by metallizing with No. 11 spray bronze and turned to size. The complete parts are as good as new. Repairs have been made to sleeves worn till the metal was only 3/32 inch thick at the thinnest point.

Another practice, which is now being used that saves time, labor, and material, is the repairing of broken cast iron pipe. If buried in the ground it is only necessary to uncover a small section around the break. A piece of wrought iron or steel pipe which will fit over C. I. pipe is used. This is split horizontally and to the inside is welded a strip of round or

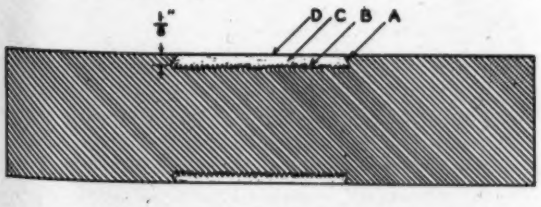

FIG. 8

Method of Repairing Worn Shaft. A—Cupped End. B—Rough Surfacing for Bond. C—New Metal Built Up by Spraying. D—Ground Surface

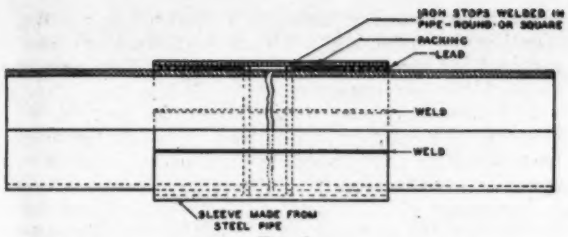

FIG. 9

Method of Repairing Broken C. I. Pipe

square iron to serve as a backing stop for the packing. This need only be tack welded.

This sleeve is then placed over the C. I. pipe and the two halves welded together. The ends of the sleeves are then packed and leaded. This makes an excellent repair job and saves the time and cost of digging out and replacing a whole length of the C. I. pipe (Fig. 9).

Old valves are being salvaged and put back in service. Cracked bodies and bonnets are welded, and worn and cut stems built up and trued. In globe valves the seats are refaced and valves ground. In a gate valve, however, more extensive repairs can be made. The gates are built up by brazing, using No. 25M rod and then refaced in the machine shop. The gates and seats are then ground to fit, using grinding paste. These repairs have been made on valves as small as 3 inches, and with excellent results.

In paper mills much of the stock pipe around jordans and beaters is copper. When it is necessary to replace or change this pipe, the old pipe is split and flattened. The bad parts are cut out and the good copper reformed into smaller pipe or other shapes as needed. The labor cost of this procedure is high and the quality of the copper not as good as new material, but has given satisfactory results.

Lead is used extensively by the pipe department. In order to reduce the purchase of new lead, all old lead pipe and lead scrap is now melted and poured into molds. This is then reused as needed for leading pipe joints and other requirements. Molds can be easily made from sheet iron and welded.

Sheet iron is now being obtained from old rosin barrels. Heads are cut out of empty barrels, the side split and flattened. Each barrel yields about 15 sq. ft. of good No. 26 gage galvanized sheet iron. This is used as required by the sheet metal workers.

Silverplating Contactors

Around power equipment, where wartime condi-

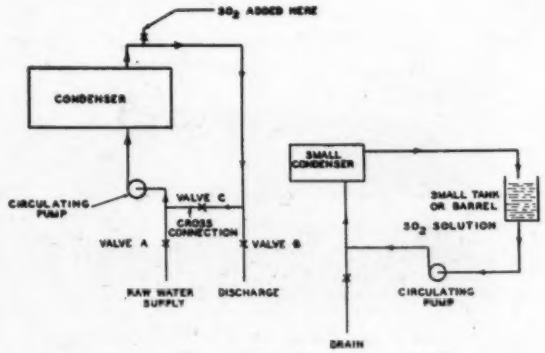

FIG. 10

Method of Cleaning Condenser With and Without Circulating Pump

tions have loaded equipment to full capacity, the question of reduction of heating of contacts and switches is a problem. Probably one of the greatest steps is silverplating of contacts. While this is not a wartime development its application in the field relieves many a dangerous condition. Silverplating can be applied by any repair department by either the brush or tank method.

Equipment which cannot be dismantled and brought to the shop can be silver plated in place, by using the brush method. In this method the anode is composed of a silver plate mounted in the center of a bristle brush. This is dipped into the plating paste and stroked back and forth across the object to be plated until a plating of the required thickness is obtained. It should be understood that this brush is attached to a rectifier by which the proper current and voltage can be controlled. This method is slow and requires more labor than the tank method but the results are equally satisfactory.

In the tank method the plating solution is placed in a container—usually glass or earthenware. The anode is a silver plate, 3 by 5 by ⅛ inches. This is connected to a small mixer motor and serves as an agitator for the solution. The part to be plated is used as a cathode. By this method we were able to plate multiblade switches and studs in the hinges, but it was found necessary to agitate the solution before uniform plating was obtained.

In all cases it is absolutely necessary that the material to be plated be chemically clean. Otherwise, no bond will be obtained between the base metal and silver.

Switches plated by the above methods are able to carry as much as 25% more current without undue heating.

Cleaning Turbine Condensers

Any person interested in the operation of turbines appreciates the necessity of clean condensers. The cleaning of a condenser usually takes several days and ties up manpower that could be used elsewhere. Condensers in this mill are now being thoroughly cleaned in about four hours by the use of a 2 to 3% solution of sulphur dioxide (SO_2) by weight. This solution is not strong enough to attack the metal with which it comes in contact, but removes all soft deposits on tubes, tube sheets and water boxes.

The method is simple and with a small amount of pipe changing can be adapted to almost any condenser layout. The system is closed on itself through the circulating pump. With the pump at rest the system is filled with water and no more is added until cleaning is complete. The pump is then started and the required amount of SO_2 gas added. This solution is

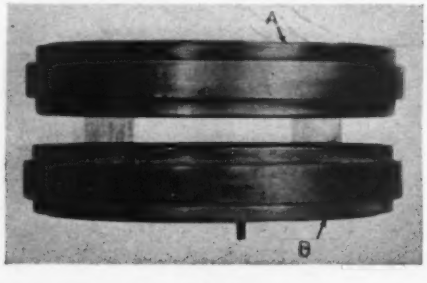

Fig. 11
Side View of Plate Valve. A—Worn Seat. B—Repaired Valve

Fig. 12
Bottom View of Valve. Pockets Marked "A" Must Hold Water if Valve is OK

circulated for about three to four hours depending on the amount of dirt in the condenser. The system is then emptied and washed out. Condensers cleaned by this method are more efficient than when hand cleaned. It must be remembered that this will not remove scale. A solution strong enough to remove scale would be injurious to the condenser tubing. Before using this method, deposits should be analyzed by a laboratory to determine the chemical which should be used to obtain the best results. This method requires only the services of one man and the machine out of service for a minimum amount of time. Chemical cleaning of condensers is not a new method and will not prove satisfactory for certain types of deposits. However, no engineer who is responsible for condenser maintenance can afford to pass it by without an investigation.

Figure 10 shows a typical line diagram of piping connections.

During normal operation, valves A and B are open. Valve C is closed. During cleaning, valves A and B are closed. Valve C is open.

Many vacuum pumps and air compressors use plate-type valves. The continual operation of the valve wears the valve plate and seat so that considerable capacity is lost due to leaky valves. Quite often a spring plate will break and lodge crosswise of the seat, the pounding of the valve quickly destroys the seat. Normally, the damaged parts are replaced with new ones. These valves, however, are now repaired.

In the case of leaky valves these are repaired by dismantling the valve removing the center guide pin and then reseating the valve plate and seat by the use

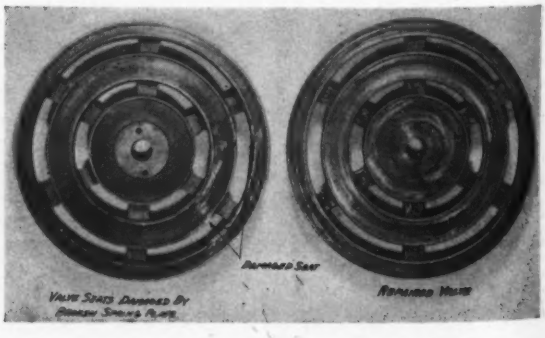

Fig. 13

of valve grinding compound (as in an automobile) (Figs. 11-14). These are ground until they hold water in the parts marked A in Fig. 12. These reconditioned valves are as efficient as new ones.

When the broken plate has damaged the seat, the valves are set up in a lathe and a new seat turned. A damaged seat and a repaired seat are shown in Fig. 13. When these valves are assembled the seats and plates are conditioned as in "A".

This method is not brought about entirely by war conditions; but it is a practice which is not generally used, and does reduce the cost of repairs and the use of new materials.

PUMPS

Since lubrication is vital to pump operation, special attention is given to lubricators. The part which gives the most trouble and which can be easily repaired in the field is the cam-operated pump rod. This part is very easily repaired by building up the worn sections with No. 25M bronze rod and dressing to size. The part in question is shown in Fig. 15, and is from a McCord lubricator. The worn surface reduces the stroke of the pump and the quantity of oil delivered.

Many more examples of practices could be cited, which conserve materials and solve maintenance problems in the absence of new parts. Some developments will be continued even after the war. One thing is almost certain—every maintenance man is fast becoming an economist.

Manpower and Policy

In industrial plants the manpower situation is becoming more and more acute. The armed forces and war industries have drawn on skilled labor until maintenance gangs are operating with a greatly reduced number of men. True, the situation is somewhat relieved by the absence of construction work so that undivided attention can be given to maintenance and repairs. However, it is necessary that gangs be reorganized and work schedules set up to operate under the new conditions. Each plant must work out its own schedule as no two operate under the same conditions.

The following is an example of a plan now being tried out by one branch of the power department and from present indications is going to work out much more satisfactorily than was anticipated.

Our mill was divided into five sections, and to each of these sections was assigned two electricians. These men are responsible for maintaining and repairing the equipment in their various sections. They do not rotate. In placing the men, special attention was given to their qualifications and ability to service the equipment in the section to which they were assigned. The plan is working out better than was anticipated.

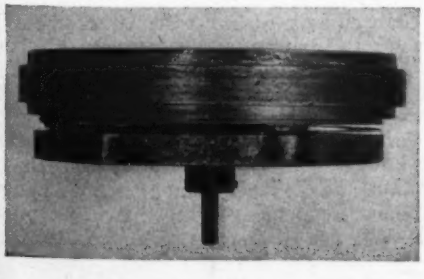

FIG. 14
Side View of Assembled Valve

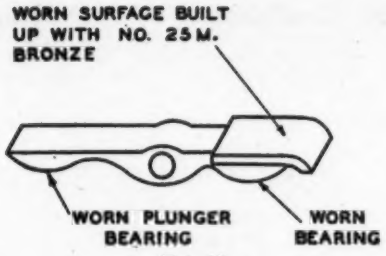

FIG. 15
Part from McCord Lubricator

The equipment throughout the mill is getting equal attention and many troubles in out-of-the-way places have been discovered and repaired before serious trouble developed. Under former methods, some departments received more than their share of attention from maintenance departments while others were neglected. The plan also instills in a workman a sense of responsibility since the condition of equipment in his section is a direct reflection on his ability. In case of a major breakdown the men from other sections are used until repairs are completed.

All equipment which cannot be repaired in place is brought to a central repair shop. The gang here consists of five workmen and it is hoped women can replace two of the men in the near future. Should they prove satisfactory, the number of women in the department will be increased. Women can be used because much of the work they will be called on to do, such as motor winding, coil making, small motor and control repairs is tedious, requiring nimble fingers and good eyesight. The heavy work will continue to be done by the men.

Probably one of the outstanding changes which has come about as a result of the war is the attitude of machine operators toward preventive maintenance. In normal times it is a standard policy never to shut down a production unit until absolutely necessary. This meant that many times machines were run with defective parts which not only caused expensive repairs when it was finally necessary to shut down, but also quite frequently caused damage to associated equipment. (The term "machine" is used here in the broad sense and refers to any piece of operating equipment.) This inclination to run equipment until the machine breaks down has changed since it is very difficult, if not impossible, to get many repair parts, and increasingly machines are shut down and the necessary repairs made prior to the breakdown. This change not only reduces the cost of repairs but saves many parts.

As to men employed in operating capacities, very little change has been made. True, schedules of shifts were changed after the President's Executive Order No. 9240 abolishing Saturday and Sunday as overtime days. Under the new schedules our men work the same number of hours per month and receive the same wage as before.

In order to keep close check on all major equipment each piece is being set up on a card system and periodic inspections scheduled. It is hoped by this method to discover faults before they have time to develop into a major repair. This practice works out well in normal times, but is of special value under war conditions.

The whole program can be summarized by the following statement—it is now necessary to get more and more from less and less.

Hold Joint Meeting at Philadelphia

About 150 met at the Warwick Hotel, Philadelphia, to attend the joint meeting of the Delaware Valley Section of the Technical Association of the Pulp and Paper Industry and the Penn.-N. J.-Del. Div. of the Superintendents Association.

W. M. Shoemaker, chairman of the Delaware Valley Section, presided at the morning session in which a motion picture entitled Three Dimensional Seeing was shown by R. A. Massey of E. I. du Pont de Nemours & Company. This picture showed how machinery should be painted to highlight the working areas, thereby reducing accident dangers.

This was followed by a question box period led by James Fish of the Paterson Parchment Company in which wire and felt was discussed.

Following the luncheon a motion picture entitled Electronics at Work was shown by the Westinghouse Electric and Manufacturing Company.

C. M. Connor of the Valley Forge Laboratories presided at a session devoted to fibrous raw materials in which David Graham, Chief of the Pulp Branch, Pulp and Paper Section WPB discussed the current pulp situation and P. M. Loddengaard of Bulkley, Dunton & Co. talked on Waste Paper Utilization.

In the evening there was a dinner dance and a brief program. Arnold Barea of the Paterson Parchment Company presided.

Mr. Graham gave statistics that showed the necessity of pulp allocation due to the shortage of pulpwood. In this procedure it appears that integrated mills will be able to use their production for essential papers. Partially integrated mills will receive sufficient pulp to utilize the grade of pulp being made. The same applies to rag paper mills. Mills depending on market pulp will receive pulp only for essential papers. Beginning January 1, allocations will be made on a quarterly basis instead of the prevailing monthly one. He cited the fine cooperation being received from Canada and told the technical men that they will need to apply ingenuity in making the available fiber supply stretch as far as possible.

Mr. Loddengaard outlined some of the problems relating to the reuse of old papers and indicated that the present unbalanced condition could be alleviated through wider use of mixed papers and the building up of inventories to 15% of the year's requirement, especially for specialty grades. He indicated that only 40% of the available waste paper is being returned to the mills and better organization of collections would relieve the situation without great effort on anyone's part. It is important, however, for the board mills to recognize that there is a shortage, under present conditions and to do something definite, as they can, to anticipate the future requirements.

Paper Sales Increase

WASHINGTON, D. C., October 11, 1943—Wholesalers' sales of paper and paper products amounted to $6,311,000 in July, an increase of 21 percent over the same month last year, according to a Bureau of Census report just issued.

For the first seven months of this year, sales totaled $49,787,000, a drop of 2 percent compared to those of the same period of 1942.

Inventories declined 1 percent in July under June, and 10 percent as compared with July, 1942.

TAPPI Notes

The annual meeting of the Technical Association of the Pulp and Paper Industry will be held at the Commodore Hotel, New York, N. Y., February 14-17, 1944. Individuals and companies who desire to present papers should notify R. G. Macdonald, Secretary of TAPPI, 122 East 42nd street, New York 17, N. Y., as soon as possible.

The TAPPI Kalamazoon Valley Section will meet at the Columbia Hotel, Kalamazoo, Mich., on October 14.

New England TAPPI will meet at the Kimball Hotel, Springfield, Mass., on Friday, October 15. The Conn. Valley Supts. will meet in the same place on October 16.

The following officers have been elected by the TAPPI Empire State Section: Chairman — W. O. Hisey, New York State College of Forestry, Syracuse, N. Y.; Vice Chairman—F. J. McCourt, International Paper Company, Palmer, N. Y.; Secretary-Treasurer —W. J. O'Brien, Syracuse, N. Y.; Executive Committee—H. G. Davis, International Paper Company, N. Tonawanda, N. Y., J. D. Haskell, Dilts Machine Works, Fulton, N. Y., W. R. Benson, National Paper Products Company, Carthage, N. Y., and R. M. Drummond, International Paper Company, Glens Falls, N. Y.

Shartle Brothers Get a Star

An Army-Navy Star to add to their "E" Pennant, has been awarded Shartle Brothers, Middletown, Ohio.

This aggressive builder of mill preparation equipment was awarded an "E" Pennant in April for: (1) Overcoming production obstacles, (2) avoidance of stoppages, (3) maintenance of fine labor standards, (4) training of additional labor forces, (5) effective management, (6) maintenance of quality and schedules.

Production at Shartle runs about 98% on Government work, and includes the manufacture of thirty odd items, most of which goes to the Navy.

Greatly pleased with their pennant last spring, and likewise grateful to receive a star at the end of six months, the Shartle personnel intend to keep up their "good work."

Both management and factory workers hope the mills, desperate though they are for equipment, will continue to exercise the same fine brand of patience they have so far displayed.

Joins Cochrane Steam Specialty Co.

The Cochrane Steam Specialty Company, 80 Federal street, Boston, Mass., announces the addition of Joseph B. Grinnell to its organization.

Mr. Grinnell is a former associate of the Whitty Manufacturing Company, manufacturers of domestic and industrial stokers, and has also been connected with the electrical staff of one of the large Army installations in New England.

The Cochrane Steam Specialty Company represents in New England the Cochrane Corporation, the Hays Corporation, the Reliance Gauge Column Company, the Northern Equipment Company, the Roto Company, the Wheelco Instruments Company, the Buffalo Meter Company, the American Arch Company, the Taylor Instrument Company, the Vulcan Soot Blower Corporation, and the Fairfield Engineering Company.

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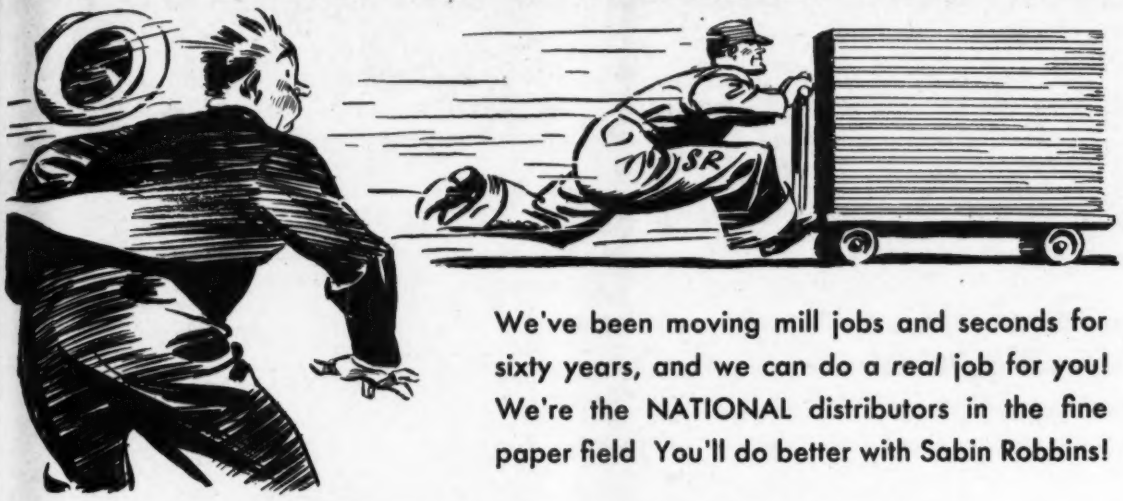

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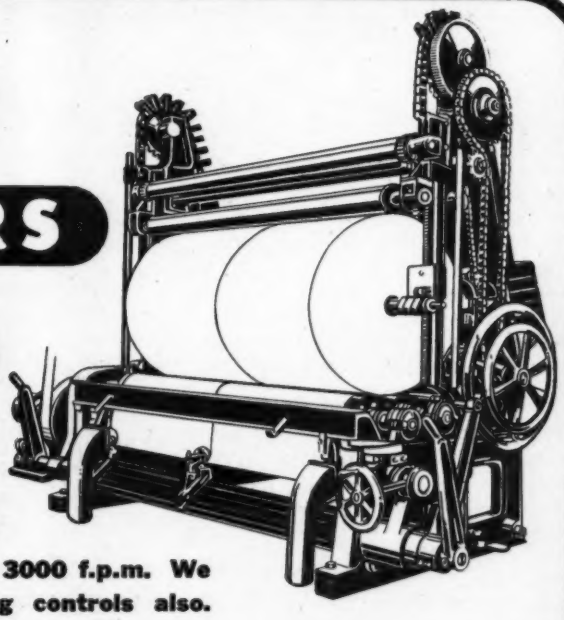

CAMACHINES—for use in paper and board mills, also converting plants. Built in widths from 18 inches to 310 inches. Rewind capacities range up to 72 inches diameter. Speeds up to 3000 f.p.m. We build web tension and web guiding controls also. Write for interesting details.

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New York Paper and Pulp Market Review

A 52% Cut in Use of Newsprint and Wrapping Papers Is Predicted By Investigating Committee—Paper Market Active—Pulp Market Strong—Demand For Waste Paper Tops Supply—Rags Firmer.

Office of the PAPER TRADE JOURNAL.
Wednesday, October 13, 1943.

A short supply of some major types of paper and concern for the future are important points stressed in reports received this week from most of many manufacturers' representatives, jobbers, and general paper merchants.

A factual indication that the paper shortage is likely to become very serious in 1944, is found in the report of the sub-committee which has been investigating the supply situation. The committee report is preliminary in character and forecasts a 52% reduction in the use of newsprint and wrapping papers unless 38,500 more men are made available for cutting pulpwood in American and Canadian woods. The report stated there was no shortage of standing timber or mill facilities for making pulp and paper.

The index of general business activity for the week ended October 2 declined to 138.0, from 138.6 for the previous week, compared with 130.1 for the corresponding week last year. The index of paper board production was 138.5, compared with 148.7 for the previous yeek end and with 121.3 for the corresponding week last year.

Paper production for the week ended October 2 was estimated at 92.7%, compared with 87.8% for 1942, with 106.7% for 1941, with 85.4% for 1940, and with 93.0% for the corresponding week of 1939.

Paper Board production for the week ended October 2 was 97.0%, compared with 80.0% for 1942, with 100.0% for 1941, with 78.0% for 1940, and with 84.0% for the corresponding week of 1939.

Some technical revisions and adjustments covering converted paper products, in General Conservation Order M-241a, was announced October 5 by the War Production Board. The order does not much concern the end use, but redefines certain items not considered as converted products, such as several types of fiber shipping containers, grocery, variety, notion and specialty bags, and loose leaf binders.

Wood Pulp

The 23,619,000 cord supply of pulpwood available for 1943 will decline to 17,599,000 cords in 1944, according to predictions in the report which the committee investigating the supply situation has just released.

The chemical wood pulp market is currently reported tight. Bleached and unbleached sulphite and kraft pulps are scarce. The new grade of unbleached sulphite pulp is also scarce. All prices remain unchanged.

Rags

Demand for colored cotton cuttings is active at this date. Supplies are more limited. Mills are paying full ceiling prices. New white cuttings are in fair demand and current buying is a little under ceiling prices.

Old Rope and Bagging

Demand for old Manila rope continues in excess of supply. Prices are strong at ceiling levels.

Trading in scrap bagging continues very slow at this date. Little interest is being shown by mills. Prices continue nominal.

Old Waste Paper

The short supply situation in waste paper has become more acute as mill demand continues to rise in excess of supply. Prices are strong and full ceiling prices are being paid by mills on all grades of paper stock.

Twine

The twine market is reported active. Demand for all grades of twine is heavy at this date. Prices are firmly maintained.

Michigan Div. to Meet Oct. 21

The next meeting of the Michigan Division of the American Pulp and Paper Mill Superintendents Association will be held on Thursday, October 21, at the Park-American Hotel in Kalamazoo. Dinner will be served at 6:30 P. M.

L. H. Glendening, manager of the Kalamazoo Branch of the United States Employment Service will speak on "The Employment Situation in the Kalamazoo Area."

Chairman Glen Sutton also announces that two of the discussion questions which have been turned in at past meetings will be brought up for discussion at this meeting.

Kurt Wandel Now at Honey Brook

Kurt Wandel, consulting engineer, is now located at the Alfred Stauffer Machine Shops, Honey Brook, Pa. He was formerly located at Lukenweld, Inc., Coatesville, Pa.

Mr. Wandel will devote his entire time to consulting and the designing of special paper mill machinery under his own name, including Steel Yankee Driers. The Alfred Stauffer Machine Shops will manufacture any equipment which can be released at this time.

Glassine Advisory Committee

Paul E. Hodgdon, president-treasurer of the Deerfield Glassine Company, Monroe Bridge, Mass., and president and general manager of the Keith Paper Company, Turners Falls, Mass., has been appointed chairman of the OPA Industry Advisory Committee for Glassine and Greaseproof Papers.

Folke Becker, president of the Rhinelander Paper Company, Rhinelander, Wis., was elected vice-chairman, and Thomas J. Burke, secretary-treasurer of the committee.

Order 6" to 36" pipe *"ready to install"*

Here's a practical suggestion for repair or replacement work on plant piping: Let ARMCO prefabricate piping to fit your exact plant or water line layout.

This way even the most intricate assemblies slip into place quickly and accurately. Fewer flanges and fewer joints are the rule because fittings come welded to straight pipe runs. There is less assembly work and less chance for leaks. And ARMCO Pipe is smooth inside for high flow capacity—easy to keep clean too. On water lines a spun-enamel lining will prevent tuberculation and recurrent cleaning troubles.

Learn how ARMCO Spiral Welded Pipe can expedite your wartime maintenance work. Keep it in mind for your post-war plans as well. Diameters range from 6 to 36 inches; wall thicknesses from 7/64 to ½-inch. This wide selection plus the flexible design of the pipe enables you to fit it perfectly into almost every layout. Write us regarding your specific piping problems. The American Rolling Mill Company, Pipe Sales Division, 2681 Curtis St., Middletown, O.

ARMCO

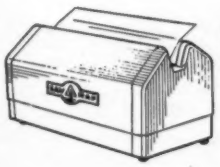
SPIRAL WELDED PIPE

Menasha Products

...Business Builders and Profit Makers for Paper Merchants

KABNET WAX

The time-saving inner-wrap service for meat markets, delicatessens, groceries.

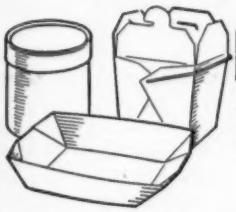


SAV-A-RAP

The inter-folded waxed paper service for retail bakeries, luncheonettes, restaurants.

NAPKINS

Illustrated, Tux dispenser and napkins. Also Compact and Super-Serv dispenser services.



CANS, PAILS, ETC.

Cans, pails, dishes — for retail distribution of bulk and packaged foods.

Because these products (1) build repeat sales, (2) are quality leaders, (3) are actively supported by effective merchandising, they are a consistent source of profit for paper merchants.

MENASHA

THE MENASHA PRODUCTS CO.

Division of Marathon Paper Mills Co.

MENASHA, WISCONSIN

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL.
Wednesday, October 13, 1943.

BLANC FIXE—Quotations on blanc fixe continue unchanged. Demand is reported moderate for the current week. The pulp is quoted at $40 per ton, in barrels, at works. The powder is currently quoted at $60 per ton, f.o.b. works.

BLEACHING POWDER—Demand for bleaching powder is reported active at this date. Supply is quite well balanced with all requirements. Current quotations range from $2.50 to $3.10 per 100 pounds. All prices in car lots, in drums, f.o.b. works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24¼ cents per pound; less than 2,000 pounds, 24¾ cents per pound, f.o.b. shipping point.

CAUSTIC SODA—Demand still reported in excess of production and the market continues tight. Prices are unchanged. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds. All prices in drums, car lots, f.o.b. works.

CHINA CLAY — Quotations on china clay are unchanged. Demand is reported moderate. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mines. Imported china clay is currently quoted at from $13 to $25 per long ton, ship side.

CHLORINE — Supply situation in chlorine reported satisfactory. Demand is active. Prices remain unchanged. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b. works.

ROSIN—Quotations on some grades of rosin are higher at this date. "G" gum rosin is currently quoted at $4.03 per 100 pounds, in barrels, at Savannah. "FF" wood rosin is currently quoted at $4.03 per 100 pounds, in barrels, at New York. Seventy per cent gum rosin size is currently quoted at $4.22 per 100 pounds, f.o.b. works.

SALT CAKE—Demand for salt cake is reported moderate at this date. Quotations continue to conform to prevailing prices. Domestic salt cake is currently quoted at $15 per ton, in bulk; chrome cake is currently quoted at $16 per ton. All prices in car lots, f.o.b. shipping point.

SODA ASH—The market for soda ash continues active and the supply situation is still rather tight. Prices continue to conform to prevailing quotations. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—A little more cash corn is coming into the market but the supply situation is still reported as tight. Prices on starch continue unchanged. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds. All prices in bags, car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA—Market is very firm at this date under a limited supply of the iron free grade. Quotations continue unchanged. Prices on the commercial grades are currently quoted at from $1.15 to $1.25 per 100 pounds; iron free is currently quoted at $2.35 per 100 pounds. All quotations in bags, car lots, f.o.b. works.

SULPHUR—The demand for sulphur continues active. Quotations on all grades continue to conform to prevailing prices. Annual contracts are currently quoted at $16 per long ton, f.o.b. mines. Contracts at Gulf Ports are offered at $17.50 per long ton.

TALC—The market for domestic talc continues to be reported as moderately active. Quotations remain unchanged. The domestic grades are currently quoted at from $16 to $21 per ton, at mines.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

News, per ton—			
Roll, contract...	*$58.00	@	—
Sheets	64.00	"	—
* OPA Maximum Price.			
Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill			
Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping...	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag.....	*4.375	"	—
* OPA Manufacturers' Prices.			
Tissues—Per Ream—Carlots			
White No. 1.....	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½....	1.00	"	—
White No. 2.....	.90	"	—
Anti-Tarnish M.F..	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet...	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.....	2.60	"	—
Bleached, Jr.....	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute.....11.25		@	—
No. 1 Manila Wrapping, 35 lb.....	6.00	"	6.25
No. 2 Manila Wrapping, 35 lb.....	5.75	"	6.00
Boards, per ton—			
News	*48.00	@	—
Chip	*45.00	"	—
Sgl. Mla. Ll. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*63.00	"	—
Binders Boards....	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
No. 1..	$10.55@$12.75	$11.70@$14.25
No. 2..	9.65 " 11.75	10.80 " 13.25
No. 3..	9.20 " 11.25	10.35 " 12.50
No. 4..	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:

No. 1 Glossy Coated...	$13.65	@$13.50
No. 2 Glossy Coated...	12.40	" 14.00
No. 3 Glossy Coated...	11.60	" 13.25
No. 4 Glossy Coated...	11.15	" 12.75
No. 1 Antique (watermarked)	10.25	" 11.75
No. 2 Offset.....	9.60	" 11.00
A Grade E. F.....	9.35	" 10.75
A Grade S. & S. C....	9.60	" 11.00
B Grade E. F.....	8.85	" 10.25
B Grade S. & S. C....	9.10	" 10.50
C Grade E. F.....	8.55	" 9.75
C Grade S. & S. C....	8.80	" 10.00
D Grade E. F.....	8.25	" 9.50
D Grade S. & S. C....	8.50	" 9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadin Manufacturers Prices, Less Freight, Not Exceeding OPA Allowances.

Bl. Softwood Sulphite.....	$76.00
Unbl. Softwood Sulphite.	65.00@ 66.00
Bl. Hardwood Sulphite.....	73.50
Unbl. Hardwood Sulphite....	63.50
Bl. Mitscherlich.....	81.00
Unbl. Mitscherlich ...	72.00 @ 82.00
N. Bleached Sulphate.....	86.00
S. Bleached Sulphate.....	79.00
N. Semi-Bleached Sulphate....	82.00
S. Semi-Bleached Sulphate....	75.00
N. Unbl. Sulphate.....	73.00
S. Unbl. Sulphate.....	63.50
Bl. Soda	66.00
Unbl. Soda	62.00
Groundwood	46.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area).....	10.50
West Coast (out area).....	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area).....	9.50
West Coast (out area).....	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area).....	7.50
West Coast (out area).....	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

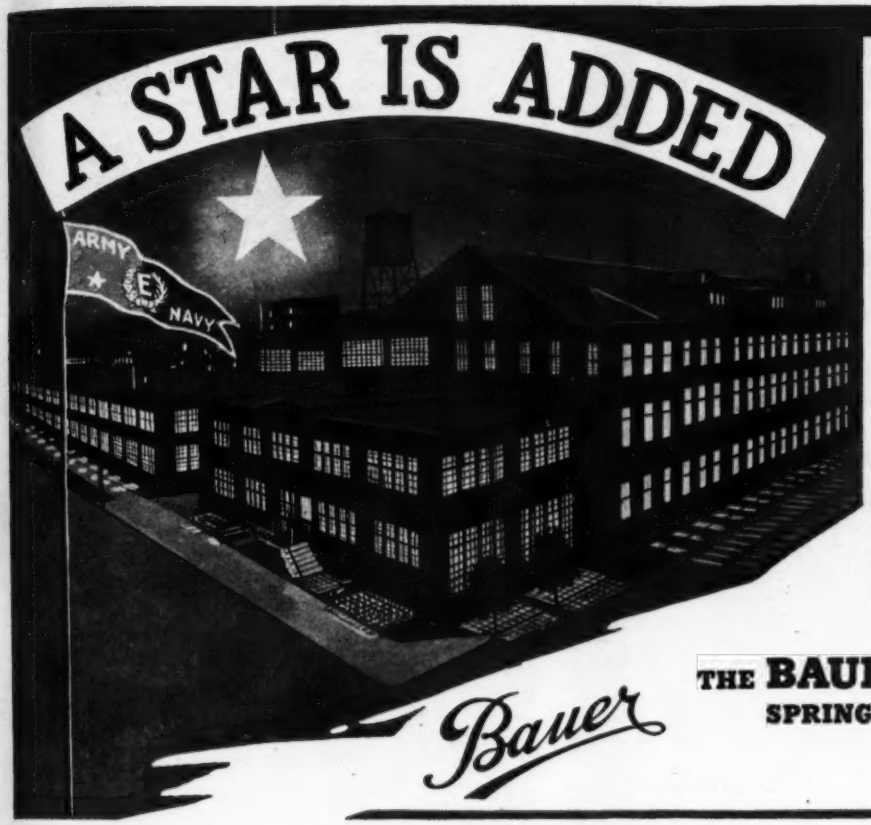
New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1..	6.50	@ 7.25*
Silesias No. 1.. ..	—	" 5.75*
New Unbleached...	6.75	" 7.50*
Blue Overall.....	—	" 5.50*
Fancy	—	" 3.50*
Washables	—	" 3.00*
Bleached Khaki Cuttings	—	" 4.25*
Unbleached Khaki Cuttings	—	" 2.50*

* OPA Maximum Prices.

A STAR IS ADDED



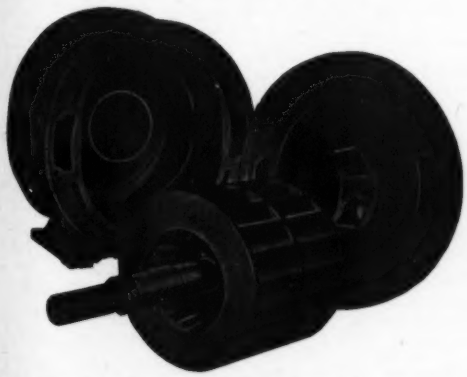
There's one particular star that interests us deeply . . . the star that goes on an Army-Navy E pennant for additional meritorious service. We were awarded the pennant in 1942. We have now won that star.

With our entire plant dedicated to long, hard hours of intensive war production, victory has become our business.

Bauer

THE **BAUER BROS.** CO.
SPRINGFIELD, OHIO

SIMPLICITY



NASH VACUUM PUMPS HAVE ONE MOVING PART

Operating advantages made possible by the Nash principle, and present in no other type of vacuum pump, permit a new level of operating economy. Nash Vacuum Pumps have but one moving part, a rotor cast in one piece, and revolving without metallic contact. There are no valves, no pistons or sliding vanes, no internal parts requiring wear adjustment or lubrication.

NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

Use CIBA Dyestuffs

For Better Results

Beater, Calender or Coated Papers

CIBA COMPANY, INC. ★ NEW YORK

DYESTUFFS ★ CHEMICALS ★ INTERMEDIATES

P. O. BOX 25 - STA. C ★ GREENWICH & MORTON STS.

VAT DYES OF ★ THE DOW CHEMICAL COMPANY INCORPORATED

★ BOSTON - PROVIDENCE - CHICAGO - MONTREAL - PHILADELPHIA - CHARLOTTE, N. C. - SAN FRANCISCO ★

Old Rags

White, No. 1—			
Repacked	*3.80	"	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.25	@	4.35
Wool Tares, light	4.25	"	4.50
Wool Tares heavy	4.50	"	5.00
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	2.00	"	—

* OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
Mixed Books	.85	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	.85	"	—

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17¼	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila		"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1	.07½	@	.07½
New White No. 2	.04½	"	.05
Light Silesias	.04½	"	.04¾
Silesias, No. 1	.04	"	.04¼
Black Silesias, soft	.03¼	"	.04
New Unbleached	.07½	"	.07½
Washable Prints	.03¾	"	.03½
Washable No. 1	.02	"	.02¼
Blue Overall	.04½	"	.05½
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales	.03¾	"	.03½
New Black Soft	.02¾	"	.03
New Dark Seconds	1.75	"	2.00
Khaki Cuttings—			
No. 1 O. D.	.03	"	.03½
No. 2 Mixed	.02¼	"	.02½
Corduroy	.01¾	"	.02¼
New Canvas	.04¾	"	.05¼
New Black Mixed	—	"	.02½

Domestic Rags (Old)

White No. 1—Repacked	3.80	"	—
White No. 2—Repacked	2.90	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
Sisal Rope	3.75	"	—
Mixed	1.00	"	1.50
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
Mixed Books	.85	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	.85	"	—

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17¼	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila		"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	2.50	@	2.75
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	1.35	"	1.50
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	2.25	"	2.50
Wool Tares—			
Foreign	(nominal)		

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Jute Corrugated Cuttings	1.07½	"	—
Domestic	4.25	"	—
Aust. Wool Pouches	4.00	"	4.25
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Bagging	1.35	"	—

* OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¾	"	.05
New White No 1.	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06¾
Underwear Cutters, Bleached	.06¼	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¾
New Black Silesias	.03	"	.03¾
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¼	"	.03½
New Canvas	.06¼	"	.06¾
B. V. D. Cuttings	.06¼	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—Repacked	3.80	@	—
Miscellaneous	3.20	"	—
White No. 2—Miscellaneous	2.65	"	—
Twos and Blues, Repacked	2.20	"	—
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—
Miscellaneous	1.80	"	—
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—
No. 2	1.45	"	—
No. 3	1.35	"	—
No. 4	1.35	"	—
No. 5, Quality A	1.35	"	—
Quality B	1.20	"	—
Quality C	.95	"	—
* Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices.

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.17½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—
Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.25	"	—
Old Corrugated Containers	1.15	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—